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"Every possible encouragement should be extended to teachers to use the scientific method in their study of problems in education and in the application of such study to the construction of a curriculum that will square itself with the constantly changing conditions of a modern, scientific age, embracing the physical, intellectual and spiritual nature of man. In this field I see great opportunity for laymen to co-operate with our educational leaders for the improvement of the public secondary schools of the State and Nation."

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The annual meeting of the California Society of Secondary Education will be held April 10, 1933, at the place where the annual Convention of Secondary School Principals shall be called, for the purpose of electing members to the Board of Trustees and for other purposes, as is provided in the By-Laws of the Society. The particular room in which the meeting will be held will be announced in the official program of the annual Convention of Secondary School Principals, which will convene April 10-12.

By order of the Executive Board.

H. M. REBOK, *Secretary*.

A POINT OF VIEW CONCERNING THE REPORT OF THE CARNEGIE FOUNDATION

MONROE E. DEUTSCH
Vice-President and Provost, University of California

THE first point which seems to me of importance with reference to what is called the Carnegie Report is to urge upon all who are interested in education in California that they actually read the report and read it in the form in which it has been prepared and distributed, and not in any outline or summary. In all frankness, the report seems to me one of the most important documents which has been prepared with reference to higher education. It is not fair to discuss the report, having before one only the bare recommendations and without reading the bases on which these recommendations stand. It is even less desirable to read the comments on the recommendations as presented by various educators, including myself, and on the basis of such views come to a decision as to the merits or demerits of the report. In other words, if I can accomplish nothing else by this statement of mine than to secure a large number of readers for the entire report instead of an abridgment, I shall feel that I have accomplished a great deal. Let me call attention to the fact that the report proper makes up only 54 printed pages, and the topics discussed are of such vital importance to education in the State that for a long time to come no one can afford to be ignorant of these recommendations.

The second plea that I should make is a repetition of a statement made by Dr. Suzzallo in the preface, in which he expresses the hope "that the findings of the report may be received with . . . open-mindedness." With that I concur most heartily.

Major Problem Responsible for the Survey

It must be remembered that the report of the Carnegie Foundation came into being as the result of a well justified feeling that the problems of higher education in the State of California should not be settled on a political basis—should not be decided by log-rolling and striving for votes—but should be settled on an educational basis. The selection of the Carnegie Foundation for the Advancement of Teaching by Governor Rolph as the institution to make the survey was a natural one since that Foundation is interested wholly in educational matters, and has previously made educational surveys in other states. The choice was also wise in that an outside agency was selected so as to free the Commission from suspicion of partisanship or prejudice.

In other words, the report of the Carnegie Foundation gives us the opportunity to solve educational problems on an educational basis, and is a means whereby the educational forces of the State can unite. I hasten to say that every single one of the 47 recommendations may not be accepted *in toto*, but the important thing is that this report should be given the greatest consideration in solving the problems of higher education in this

State. If the educators can but use it as a basis for an agreement on an educational plan for the State, it will have been well worth while.

In the discussion of the details which may be taken up, all too often there is forgotten the immediate cause of the creation of this Commission —all too often are forgotten the precise problems which brought it into existence. The legislation creating the Commission came about as a result of the efforts made in the last Legislature to set up four-year colleges on the foundation of Sacramento Junior College and the two teachers colleges at San Diego and Fresno. To be sure, the issue was settled for that particular Legislature, but it was clear that unless some solution were found for the problem, it was an armistice only that had been attained.

Recommendations of the Commission Considered

On the question which was responsible for the creation of the Commission, the answer is direct and unequivocal. The recommendation is as follows:

> The Commission recommends that for the present the Legislature authorizes no further expansion of senior college facilities apart from Berkeley and Los Angeles.
>
> When, however, it is clear that the use of facilities at Berkeley and Los Angeles has reached the saturation point and that the finances of the State are sufficiently prosperous, then detailed inquiry should be undertaken by the State Council for Educational Planning and co-ordination (a body whose creation is proposed elsewhere in the Report), which should recommend the location of a third senior college, if any, under the Regents of the University System, wherever geographical and population factors promise the largest service and economy in University organization.

I would have you note more precisely what is here stated. In the first place, as to upper division or senior college work, the Commission flatly and definitely puts itself on record as opposed to its establishment or development at the present time. Berkeley and Los Angeles are adequate and have by no means reached the point where no additional students can be properly cared for. When they do reach that point and when the State, whose expenditures this biennium will probably prove to be $35,000,000 more than the income for that period, is hereafter again prosperous, then a scientific study of the problem should be made with a view to placing the third four-year college where it should be established from the point of view of population, geography, etc., not of politics. If and when a fourth becomes necessary, its location will be decided in exactly the same way. In short, the answer to the aspirations of these institutions is: "At the present time, no" but a machinery is set up to determine future need and location.

May I particularly call attention to the view of the Commission that the State of California should not be permitted to create senior colleges of inferior quality? I quote from the report:

> The Commission calls to the attention of the people of those regions now demanding additional senior colleges the relative function of junior and senior colleges as indicated elsewhere in this Report. But what is more important for their consideration is that the mere multiplication of senior colleges in name may not, and probably will not, give them senior colleges of that high American standard which California now has. The people of California do not desire for their children additional opportunities which are second rate.

> The higher reaches of specialized education on the University level cannot for financial reasons be distributed as local schools. The University system has always been provided by state-wide support and should always be treated as a State institution with branches. The indiscriminate establishing of regional senior colleges would multiply university units in such a way as wholly to deplete the financial resources for university education and reduce the functioning of all such higher institutions to a mediocrity of service and achievement that is antithetical to the whole university ideal of high selection and unusual quality and efficiency.

It should be emphasized that the Commission sees clearly that higher education in the State of California should form part of a single unit, the University of California, and that when a scientific study shows the need of additional facilities in a particular spot, these should be established or developed as a part of the State University system. If that is not the case, then chaos is introduced in the whole field of higher education. It would bring not only chaos but something infinitely worse, namely an inevitable surrender on the part of California of its primacy in the field of higher education.

In connection with the proposal to expand certain of these institutions to four-year colleges, the argument was advanced as to the need thereof for the purpose of vocational education. The Commission points out the desirability of developing such intermediate training in the *junior* colleges of the State. But "only in isolated instances, particularly at Los Angeles, has it succeeded to any large extent." After a discussion of the reasons for the failure of the junior colleges in this respect, the question of senior college training of a vocational type is discussed. The answer of the Commission is again unequivocal:

> Since, however, vocational education on the junior college level is still in an early and experimental stage, the Commission recommends that no experimentation in the field of semi-professional or occupational training on the senior college level be undertaken until it can be demonstrated that the junior college does not offer the solution of the problem.

For senior college work on the university level the principle of selection is admirably set forth in the report:

> Failure of education at the level at which scientists, teachers, doctors, lawyers, and other similar professionals are educated is of far greater consequence to society than it is to the individual. University education is not a personal privilege or right, though all should have equal opportunity to compete for its offerings. Social necessity creates its provisions and aims to recruit and educate the fittest who offer themselves.

In speaking of the proposal for such four-year colleges, the report continues:

> At present the State is not bound to provide the additional facilities at the high cost necessary, particularly at a time when State finances are likely to be strained for a decade and when proper financing of the recently established junior college system has not been adequately provided. For the State under political pressure to respond to these local demands to extend general education upward two years is to reverse not only the trend in the United States but likewise the whole trend and accepted theory as it is manifested in the California public school system.

The report, however, does not confine itself to the question which called the Commission into being—namely the desirability and practicability of

extending and altering certain institutions into four-year colleges. It was charged with the responsibility of "making a survey of the tax-supported institutions of the State that are beyond high school grade with the purpose of making recommendations as to a suitable future policy and a plan of operation." The conclusion of the Commission was that "there is a notable lack of unity in the administration of education . . . (This) plurality of control has naturally resulted in overlapping functions, waste, inefficiency, and lack of unified control." To assist in removing these evils, it is recommended that there be established a State Council for Educational Planning and Co-ordination, its purpose being to attain "co-operative understanding and co-ordinated effort in the operation and articulation of the common school system and the university system." This plan was definitely selected by the Commission in preference to "the establishment of a super-board with powers superior to the State Board of Education and to the Regents of the University." The reasons against such a super-board are cogently set forth:

> The American educational experience, many times reviewed by the state surveys (surveys of eleven different states are cited), has almost always decided against this extreme unification of control because it does not yet promise to be effective. The university system and the common school system represent such contrasting functions, traditions, and conditions of operation that it is almost impossible to recruit for membership in such a super-board laymen who are amply competent, or would readily become so with experience, in both the university and the common school fields.

Accordingly, instead of a super-board the council proposed is to exist for co-operation. It is not necessary to go into the details of its proposed membership. Much discussion has waged about the personnel. Far more important is the question of the desirability of its creation. It will be found that the University is entirely willing to join in such a movement. After its creation has been settled, surely the composition of the council—with adequate representation for the several elements—can be worked out without difficulty.

An interesting proposal which has been much discussed has to do with the suggestion that the university system should include the teachers colleges of the State, which would thus be placed under the Board of Regents of the University. The argument made by the Commission is most interesting. I shall not, however, quote it. Doubtless, in part, they were led to this conclusion through the successful development of the Teachers College at the University of California at Los Angeles. The enrollment there during the current year is 1,644. When it is observed that the largest of the seven independent teachers colleges contained 1,217 students in the year 1931-32, the enrollment at the Teachers College of the University is the more significant. I am not, however, thinking only in terms of numbers but of the development of the curriculum in the other teachers colleges of the State. There are, however, many items to be considered before such a change takes place. Many points of view will be expressed. The interests of the University, the interests of the teachers colleges, the interests of the State in its entire educational system—all of these must be considered with care before a final decision is reached. Certainly the University is

neither seeking such an enlargement nor would it wish to include reluctant teachers colleges.

There is one paragraph in the report which may well escape notice because from it does not emanate any proposal, but the importance of which should not by any means be overlooked:

> The Commission is not disposed to recommend any change in the method of government for the University of California, not merely because any change would involve the difficulties of constitutional amendment, but because the present organization has worked unusually well. A comparative study of the efficiency of the arrangements for state university control in other states affirms this view. * * * Experience in California, as well as in other states, indicates that long term appointment by the governor of the majority of the board is desirable for a university system, because stability and continuity in board membership are required to maintain the highly technical and specialized services of a university. The Governor of the State can select more readily and more discerningly than the electorate those citizens eminent in the professions and in human affairs who will be of special worth in formulating university policy.

It is a great satisfaction to have these unprejudiced experts so heartily recommend the method of organization and successful administration of our Board of Regents. It is important to remember that this body of experts was not only brought to us from without the State, is not only composed of persons impartial and unprejudiced, but also of men whose standing in the field of education is distinguished. The types of institutions which they represent are varied. The chairman was Samuel P. Capen, Chancellor of the University of Buffalo, who for five years (1914-19) was the specialist in higher education for the United States Bureau of Education; another member was George F. Zook, now President of the municipal University of Akron and who was also for five years (1920-25) specialist in higher education for the United States Bureau of Education. Teachers colleges were represented by James E. Russell, Dean Emeritus of Teachers College, Columbia University, New York, and Orval R. Latham, President of Iowa State Teachers College. The only state university official in the group was President Lotus D. Coffman of the University of Minnesota. The remaining two were Dean Charles H. Judd of the School of Education, in the University of Chicago, and Professor Albert B. Meredith, Professor of Education and Head of the Department of Administration in the School of Education of New York University.

Certainly this is a group commanding respect among educators. Specialists in education would without question place such men as Russell and Judd in the very first rank. It was as a whole a well balanced group, and certainly the teachers colleges could not claim that this type of institution was unrepresented on the Commission.

Since the report has appeared, there have been many addresses made about it—many articles issued. The important point which I wish to urge is that we shall not lightly dismiss the report as a whole or such recommendations as do not meet our preconceived views.

Let us rather recognize the impartiality and ability of the Commission selected. Let us seek to use their report as the basis for agreement among the forces of higher education in California, to the end that we have an educational rather than a political program for higher education.

THE CARNEGIE FOUNDATION REPORT FROM THE STANDPOINT OF THE TEACHERS COLLEGES*

FRANK W. THOMAS
President, Fresno State Teachers College

THE general recommendations and implications of the Carnegie Foundation Report have already received sufficient publicity and discussion to warrant the assumption that you all have some familiarity with them and may have reached rather definite conclusions in regard to them. My paper today is not concerned with the majority of these recommendations, except as their adoption would ultimately affect in a very fundamental way the entire control of educational organization in California. I shall confine my discussion to those parts of the report which deal directly with an appraisal of the work of the teachers colleges, with suggestions as to their future fields of service, and with the form of control which it proposes for these institutions.

The Evolution of Teachers Colleges in California

During the past decade the teachers colleges of California have been passing through a period of evolution and experiment which has attracted nation-wide attention. This State is the only one in America which has set four years of training as the basis for certificating its elementary teachers, and only a few municipal teachers colleges in some progressive American cities have undertaken such a program. Students enrolled in the four-year courses of other state teachers colleges are, practically without exception, preparing for high school teaching. Even in our own State there are to be heard such divergent opinions as to what we are trying to do and where we seem to be going that I feel warranted in prefacing my comments upon the Carnegie Foundation Report by some discussion as to what manner of creature these California teachers colleges are. Only with such a basis of common understanding could we hope to evaluate fairly those portions of the Commission's report which deal with the teachers college situation.

The present status of the teachers colleges, especially as regards character of curricula, scope and fields of service, and relationships to other parts of the educational system of the State, developed during the period Dr. William John Cooper was ex officio their director and much of that development was due to his sympathetic interest. An attempt was made to discover as far as possible the opinions of the superintendents and supervisors in the State of California as to the types of training possessed by their most successful elementary teachers in order that we might be guided in our pioneer work of constructing curricula for teacher training by such

*An address before a joint meeting of the Western Association of Colleges and Universities with the California Society of Secondary Education, held at San Francisco, October 13, 1932.

counsel and experience. We found them pretty unanimous in their conviction that a teacher of genuine college training proved in the long run the most valuable teacher, although there was usually a regrettable and wasteful preliminary period during which such persons were acquiring the techniques and procedures essential to teaching skills. Teachers with normal school training were more immediately successful in classroom situations but were inclined to rely permanently upon their already-acquired devices and techniques without proper educational bases for improving and adapting these to an advancing educational program. They were long on devices but short on comprehensive knowledge. It seemed to us that a four-year curriculum should be adequate to the preparation of skillful teachers who should at the same time be educated persons.

Following the example of other professions, we decided to utilize the first two college years for emphasizing the fundamental, basic fields of knowledge with which well-informed people should be reasonably familiar, and to superimpose upon this two years of rather intensive professional training, carrying along with it advanced studies in limited fields of subject matter in which the prospective teacher should acquire reasonable mastery.

As soon as this program was put into operation some interesting developments occurred which had not been wholly anticipated. Many students began to utilize the lower division offerings for purposes other than ultimate teacher training. Other students remained to complete the upper division offerings for their general educational value rather than because of interest in becoming teachers. These developments occasioned queries as to what was to be the ultimate character of these institutions, and the situation was viewed in some quarters with apparent alarm.

Conference of Joint Committee on Educational Relationships, 1928

Since this was a matter vitally affecting University relationships, State Superintendent Cooper decided that the entire situation should be presented for discussion at a meeting of the Joint Committee on Educational Relationships. This meeting was held in the Committee Room adjoining the President's Office at the University of California on November 23, 1928. There were invited to this meeting two members of the Board of Regents, two members of the State Board of Education, three state teachers college presidents, and three Deans from the University of California, in addition to President Campbell. Those representing the University were Dean Lipman of the Graduate School, Dean Walter M. Hart, and Associate Dean Baldwin M. Woods, official University representative in educational relations. Superintendent Cooper represented the State Department of Education. President C. L. McLane of the State Board of Education was chairman and Dean B. M. Woods served as secretary. At the request of Superintendent Cooper your present speaker presented a statement of the policies and functions of the state teachers colleges. Since no wide publicity was given to the transactions of that meeting and since the program agreed upon at that time is so vitally the subject of discussion in the Carnegie Foundation Report, I shall quote verbatim from the minutes of that meeting:

Superintendent Cooper presented a brief analysis of the present teachers college curriculum. The lower division is intended to be comparable, if not identical, with that of the University. In the freshman and sophomore years the emphasis is upon general and not upon technical courses. In the upper division, about one-half of the courses to be taken are of the so-called cultural type, and the remainder are technical courses. President Campbell announced his belief that the training of good teachers would be greatly improved by this increase in the cultural content of the curriculum. For the teachers colleges, President Thomas presented a detailed report as follows:

Scope of Courses in the Teachers College Program

The obvious function of the teachers colleges is teacher training. In carrying out a program designed to do this properly, two lines of work are essential, and certain by-products are inevitable. A brief statement explaining each of these considerations seems appropriate. In attempting to make such a statement it is my purpose to set forth as accurately and tersely as I can the philosophy of teacher training held and practiced by the teachers colleges of California.

The primary consideration, at least in point of time, is that the prospective teacher become a well-educated person. This should include first of all a familiarity with the sciences, language, literature, arts and social studies properly belonging in the equipment of any one expecting to serve in a professional capacity. Such breadth of cultural preparation is especially desirable in a teacher from the very nature of the work and influences which go with that type of professional service. It is not only desirable that the teacher have as much in common with other educated persons in the community as can feasibly be assured, but it is also an advantage if the teacher during the period of training have opportunities to learn something of the interests and viewpoints of those training for other professions. Only by a basic training in which opportunities for such culture and interests are given due consideration can we hope to produce teachers who individually are exemplars of the standards toward which education should be directed.

The next consideration, also indispensable in the training of an efficient teacher, involves the specialized professional training. Provision must be made for courses in the basic psychology of learning, not merely in its mechanical aspect but also in the broader factors which condition the attitudes, application, interest, and emotional responses of the pupils. School activities may result in wasted time, in unsocial attitudes, in an actual distaste and aversion toward the real purposes of the school unless the teacher has acquired an understanding of the principles underlying the child's reactions and has mastered a technique in dealing with the pupils which directs their activities along desirable channels. This professional training must also include a mastery of the specialized forms of subject-matter appropriately belonging in the field in which the teaching is to be done. If, for example, the field is the junior high school, an adequate selection of courses in advanced subject-matter should be carried in conjunction with the specialized studies in education in order that the teacher may know her materials as well as her teaching procedure. It hardly need be added that provision for acquiring some proficiency in the practice of teaching should be available and that all of the professional part of the training be acquired in an atmosphere of sympathy toward teaching as a profession.

There remain to be noted the inevitable by-products before mentioned. Not all students who begin this training will be found well adapted for service in the particular field at which they had aimed. Consequently, there should be sufficient elasticity in the program and offerings of the teachers colleges to permit diverting such students toward other lines of work without unnecessary hardship to the student. In case the other field is one for which the college offers complete training the transfer is easily made. In case the aptitudes and evolving interests of the student point toward a field of teaching beyond the scope of the teachers

colleges, it is obviously wise to suggest to such a student an early transfer to another institution offering the desired type of instruction, and to direct the work of such students of this type as choose to remain into most appropriate subject-matter courses preliminary to the professional training on a graduate level. An adequate range and variety of such courses will naturally be available as the necessary provisions for supplying the advanced subject-matter for prospective teachers in the junior high schools, or upper grades, and thus constitute no unusual burden. It is also fortunately true that in most cases the change in plans occurs before the beginning of upper division work; consequently, the lower division of the teachers college, consisting as it does of broadly pre-professional training, may be utilized locally for junior college training regardless of later objectives. Such use would be possible regardless of the wishes of the administration of the colleges as now organized. As a matter of fact, it is welcomed because of the broader variety of stimulating educative contacts afforded prospective teachers during the period in which the cultural foundations are being laid, and while there is still some uncertainty as to the later professional specialization. This broader group of lower division students constitutes also a very desirable recruiting ground from which come many excellent teachers who had not originally any special interest in the profession. All in all, it is our conviction that those added services and lines of work which have been designated as by-products are not only necessary accompaniments of a well-planned teacher training program, but are also abundantly justified because of their favorable influence upon teacher training itself.

In commenting on the Report, President Thomas called attention to the pre-secondary curriculum in the teachers colleges, where upper-division training is offered in two or three academic subjects with a requirement of only 12 units of education for the degree. This curriculum is intended for those who discover, after they have been in attendance for some time at a teachers college, that they are more interested in the secondary field of teaching than in the primary field. It is the expectation that these students will complete their fifth year at the university, and that if they desire teaching majors in any subjects other than those in which it is feasible for the teachers college to offer upper-division instruction, they will transfer to a university before completing the undergraduate course.

On motion, the report of President Thomas was approved. The purpose of this pre-secondary curriculum is thus to fill an obvious gap in the professional program of the teachers colleges.

In accordance with the understanding reached at this meeting four years ago, the relationships between the teachers colleges and the University continued satisfactory for the succeeding two years. Superintendent Kersey succeded Superintendent Cooper as State Director of Education in direct charge of the teachers colleges. Through his sympathetic help continuous efforts were put forth toward improvement of the character of the service rendered. Without undue lack of consideration for some of us oldtimers who had been with the institutions for many years, there were called to the administration and faculties of these colleges men who had won national standing for their written or practical contributions to teacher training. Many students whose original interest was in the pre-secondary curricula became interested candidates for the teaching credentials obtainable in the teachers colleges, unless counselled against such action by their supervisors. After four years during which the pre-secondary courses were available to students in the teachers colleges, there were last year out of a total of 1,243 graduates receiving the A.B. degree from the combined group of seven teachers colleges, just 132 in the pre-secondary group graduating

without teaching credentials. This residue of 10 per cent represents only a minority of those originally registering on a pre-secondary program, amounting sometimes to 40 per cent of the freshman class. Mr. Webb found last year 29 per cent of our students so registered. An incident will partly explain what happens. Last May when an opportunity came to recommend candidates for an elementary teaching position, I had occasion to interview two young women who were ranked among the highest ten in their class. On glancing over their records I found that both had originally registered for pre-secondary courses but had transferred during the junior year. I asked them why this had happened. One said, "My high school adviser told me not to bother with elementary teaching for I had brains enough to be a high school teacher. I just decided last year that maybe it takes more brains to be a good elementary teacher than to teach in high school." The other told a story of similar advice, but had changed when she found she preferred small children. I do not know how prevalent such influences and attitudes are among high school teachers, but I am sure the pre-secondary curricula give us the opportunity to find some excellent elementary teachers. Besides those making this change, many transfer before graduation to the universities. The remainder, along with those diverted from elementary teaching by our own supervisors and counselors, constitute the ten per cent completing the pre-secondary curricula. I may add that we are rather proud of the later records of those who register for graduate study in the universities. A considerable number do not and should not continue toward a credential but go directly into other occupations. There surely is nothing alarming in these figures for those of us who hold elementary teacher training as the predominent function of the teachers colleges and that incidental service should be partly for the purpose of diverting unfitted candidates away from that objective. Students taking the pre-secondary curricula merely utilize the courses in the major departments already organized to provide upper division major work for elementary or junior high school teachers.

Conflicts Between University and Teachers Colleges

About two years ago there were issued by the administration of the University of California some sharp criticism of such offerings and curricula in the teachers colleges. These statements were generally interpreted in the teachers colleges as portending a repudiation of the agreement reached in 1928. No proposal came for any reconsideration of the matter in a representative educational conference, but alumni spokesmen declared that the teachers colleges were to be put back into their proper place. Perhaps the pronouncements were taken too seriously in some quarters, because the legislative representatives in two of the regions, the leaders being themselves University alumni, were so resentful of the threatened restrictions upon the work of the colleges that they joined in a counter attack along with another locality, perennially aspiring for collegiate recognition, in a move to secure entirely independent collegiate status for these institutions. Thus the question was taken from the hands of the educational authorities who had previously guided the relationships with fair success,

the prudent counsels of the State Department of Education were ignored, and the matter became a political and legislative issue.

At this juncture a truce was called until there could be a survey of the situation. The Carnegie Foundation undertook the task. The State teachers colleges welcomed the coming of this Commission because it seemed to furnish an occasion for a fair evaluation of the pioneering which they had been doing in teacher training upon a professional level. It was hoped that the character of their instruction, the organization of their curricula, and the relative unit costs would receive objective, statistical evaluation. In order that this could be accomplished every possible resource in the way of records and statistical data were made available to the Research Director of the Commission. One member of the Commission was himself the head of a teachers college, although the majority of his students were pursuing the 2-year normal school type of apprentice training for elementary teaching, while practically all of his 4-year students were preparing for high school teaching. All other members of the Commission connected in any way with teacher training were associated with graduate schools of education or with the training of secondary teachers.

Before taking up the specific recommendations of the Commission, it is well to note that the differences in viewpoint and practice between the teachers colleges and the University appear in three essential fields or functions: the plan of admissions, the pattern of lower division requirements, and the scope and organization of upper division majors. Behind these lie differences in the philosophy and conception of responsibilities in higher education. . . . There must not only be provision for intellectual selection and academic specialization, the traditional conception of the college, but, with the coming of a more cosmopolitan group of students, there must also be more broadly socialized offerings for the many who are more social than academic in their interests, and will go directly into positions of social leadership. Both responsibilities are of vital importance. The University has chosen to emphasize the former, and has determined its plan of admissions, its lower division requirements, and its majors, with a view primarily to intellectual specialization. The teachers colleges, preparing as they are for a broad type of social service, have tended to emphasize the second responsibility and to direct their organization accordingly. In the light of these somewhat divergent emphases and practices, we shall note the comments and recommendations of the Commission upon these points.

Recommendations of the Commission

The major recommendation of the Commission was that the entire control of the teachers colleges be removed from the State Department of Education and placed under the jurisdiction of the Regents of the University. It was recommended also that the pre-secondary curricula be discontinued but that graduate work to the master's degree level be given in limited professional fields. Other references to the teachers colleges suggested that their curricula were too liberal (page 23) and not professional enough (page 39) in that they did not, to quote their words,

> amply provide for, first, historical and comparative approaches to the study of education peculiarly valuable in revealing the sociological elements in the field, and, second, an understanding of all the school situations and functions beyond each individual's field of specialized responsibility, appreciation of which is fundamental to mutual co-operation and unity of effort in school organization.

In so far as we are able to make out the meaning of this sentence, it describes precisely what is included in all the teachers colleges in the course usually termed "An Introduction to Education." It certainly is the avowed purpose of Cubberly's text book for that course, the text which is in most frequent use. The most complimentary language bestowed upon the teachers colleges has to do with our lower division offerings. It recommends that the junior college curricula be still further extended in the teachers colleges (page 59) and recommends that leadership and assistance in this regard be given by the teachers colleges to neighboring junior colleges (page 40) in the matter of formulating a main or core curriculum for social citizenship. It deplores the "slavish imitation" of the lower division courses of the University by the junior colleges (page 37) and finds fault with the autocratic manner in which they believe the University deals with the junior colleges, using the following language:

> Many graduates who might complete the liberal courses for social intelligence in the junior college might be as well prepared and in many instances better grounded for specialization than numerous graduates now admitted without question from the University preparatory curricula. Of this fact the admission requirements of the University at present take no account. Requiring such specific patterns of pre-university training as are now commonly demanded assumes an efficacy which the present policy does not possess. The intellectual ability of the student far outweighs all other considerations in a successful university career.

It comments critically upon the admission system of the University in the following language (page 21):

> The right to admit to specialized courses is properly lodged in the university system, but insofar as the university method of judging the ability and educational promise of the applicant is antiquated and inadequate, injustice ensues to the individual and therefore, ultimately, to society. Of such injustice the layman has a right to complain.

The further comment is made (page 16) that "The University has been rigid in its preparatory requirements without due consideration of the other functions of secondary schools."

These quotations are given, not for any reflection upon the University and its work, but because they are vital to any consideration of the conditions upon which unified control under the Board of Regents would be acceptable to the teachers colleges and to the communities which they serve.

The great disappointment of the teachers colleges with the survey was in the almost total absence of any objective evaluation or scientific appraisal of their work. We had expected that such an evaluation would be made as to our relative costs, the character of our curricula, and the quality of our product. The references to such matters as these are so casual as to cause one to wonder why they were mentioned at all.

Many of the school superintendents in California had reiterated their conviction that elementary teachers are now being trained far better in

the teachers colleges than ever before. Our gratification over their comments upon the richer cultural equipment and preparation for social leadership was rather cooly dashed by the passing comment of the Commission that our courses were "too liberal."

At the annual meeting of the American Association of Teachers Colleges there is always a special session of those few institutions, such as Harris Teachers College, in which the major business is the training of elementary teachers upon a 4-year curriculum. The eagerness and respect with which representatives from the California teachers colleges are urged to tell of their liberalized curriculum and to offer suggestions which others could emulate are almost embarrassing. I suspect that Commissioner Cooper is partly responsible for this because of his comparisons and references to our work as he visits other institutions. Such a famous institution as Harris Teachers College of St. Louis, after more than a decade's experience with a narrowly professionalized curriculum such as the Commission recommends, is now entirely revising its elementary teacher training program to approximate that of California.

In spite of the fact that their research data shows that unit costs in the teachers colleges are lower than in the University, and even below the median for junior colleges, the Commission continually implies that they are alarmingly expensive, and that more of their students should be transferred to the University. A comparison of unit costs with those in the teachers colleges of other states, had the Commission been willing to make such a comparison upon the basis of data available to them, would have shown the California teachers colleges in a still more favorable light.

The most important single recommendation in the Commission's report is, of course, the one concerning the transfer of control of the teachers colleges from the State Department of Education to the Regents of the University. We are all conscious of the disadvantages and uncertainties involved in the present system of control. The rapid changes which take place in the State Board of Education due to political turns are always a disadvantage and may become a menace. Our good fortune in having a succession of three State Directors of Education of such unusual ability and educational vision carries no guarantee of permanence. Most precarious of all is the present domination of the policies and administration in the teachers colleges by the Department of Finance which was given autocratic powers by one provision of the reorganization laws passed by the last legislature. On the other hand, there are distinct advantages which one would gladly retain. The plan of admissions and the organization of the lower division courses are directly under the jurisdiction of a board closely connected with and vitally interested in the work of the public schools. Obviously there are distinct advantages in having the control of teacher training unified with the control of the public school system in which the teachers are to serve. The relationships between the teachers colleges and the lower schools as well as with the junior colleges, all of which the Commission commended most emphatically, were worked out largely because of the intimate associations under the State Department of Education.

Those who heard the opinions expressed in the Superintendents' Convention or who know the temper of the communities and areas served by the present teachers colleges or who heard the convictions voiced by many legislators at their last session, are pretty generally convinced that no legislation looking to such a transfer would be possible unless the advantages and freedom for service now existing were safeguarded in the transfer. That is to say, the change must not involve subordination to the University organization, but rather to the Board of Regents on some basis of co-ordination.

This might logically involve a Division of Teacher Training in the greater University of the State of California, with a Chancellor over the group of co-ordinated institutions. Such co-ordinated relationships between the various State institutions of higher learning is assured by the plan of centralized control already adopted in certain other states. The members of the Commission were unwilling, in fact, that the present Board of Regents in its entirety, with the personnel, traditions, and interests now prevailing, should assume immediately this jurisdiction. Instead it recommends (see page 24) that a selected committee from the Board of Regents serve in this capacity until the remainder of the group can be educated to wider conceptions of responsibility. The intricate question of responsibility and authority under any such transition plan would surely tax administrative resourcefulness to the utmost.

I feel that I should say in closing that the chief interest of those responsible for the work of the teachers colleges is in the continuation of their present program of educational service which they believe has been justified by all fair bases of appraisal and evaluation. They are disposed to move carefully and to measure critically the results of every step in the pioneer task which they are carrying on of developing, practically without precedent in any other part of America, a curriculum of teacher training that will effect an attainment of integrated culture, social leadership, and adequate professional techniques. They regret that the Commission did not seem disposed to ascertain the extent to which this program had been successful in terms of actual results. They regret, moreover, that the Commission was inclined to extend far more powerfully the present unfortunate domination of the Director of Finance. These regrets, it is just to add, are partly balanced by an appreciation for the words of commendation freely bestowed by the Commission upon some of our achievements. It is the earnest hope of the teachers college administrators that out of the discussions stimulated by the Carnegie Foundation Report there will come some plan of official control which will promote a stability of service in our legitimate range of activity and will restore a harmonious understanding and basis for co-operation in the State's system of higher education.

AN APPRAISAL OF THE FINANCIAL RECOMMENDATIONS CONTAINED IN THE CARNEGIE FOUNDATION REPORT ON STATE HIGHER EDUCATION IN CALIFORNIA

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AMONG the major purposes for which the Carnegie Foundation was employed to make its survey of state higher education in California was that of securing a recommended plan based upon careful investigation for the financing of public education above the high school level. Accordingly, one section of the report of the Commission appointed by the Carnegie Foundation to make the survey is devoted to recommendations relative to the financing of education on the junior college and on the senior college levels. A summary of these recommendations is presented herewith.

Plan for Financing the Junior College

The Commission conceived the junior college as the final phase of public secondary education. As such this level of public education is considered to embrace not only the public junior colleges but the lower division of the teachers colleges and of the State university as well. The recommendations of the Commission therefore involve a plan of finance which would be uniform for all institutions on this level.

The specific plan of finance recommended is preceded by a statement of principles involving the recommendations that the system of financing education on the junior college level should provide for an equitable distribution of costs as between communities and as between the State and communities, and that the costs also be equitably distributed as between institutions and localities.

The specific plan recommended for financing all types of junior colleges and lower divisions in public institutions involves the following steps:

1. The State shall contribute $100 for each student enrolled.
2. The county of residence shall contribute $110 for each student enrolled, this amount including a $50 per student charge for current expenditures and a $60 per student charge for use of physical equipment.
3. Any additional cost involved in the junior college or lower division program should be provided by taxes levied upon the district in which the junior college is located.

There are one or two points in connection with this plan which are not entirely clear in the statements contained in the Commission's report. For example, it is not clear whether the State would be considered the district in the case of the lower divisions of the teachers colleges and the State university or whether any cost involved in these institutions in excess of the State contribution of $100 and the county contribution of $110 per student would be borne by the State as a whole or by some local sub-

division such as the high school district or the county in which the teachers college or State university is located. If the former interpretation is made it is apparent that the State would be required to provide more per student for the lower division of the teachers colleges and of the university than for the junior colleges. If the latter interpretation is to be made then it would be necessary to determine what local unit should be employed as the "district" in which the teachers college or university lower division tax should be levied. A third possibility, of course, would be that the students in the lower division of the teachers colleges or university should themselves be required to pay the difference between the actual cost of their education and the amounts derived from the State and from the counties.

A second point which is not quite clear in the plan recommended is involved in the question as to whether the $60 per student county tuition charge for use of buildings and equipment should be employed to defray a part of the current operating costs of the junior college or whether this amount should be reserved for replacement of buildings and equipment. If the latter is intended then the total amount available for current operating costs from other sources than district taxes would be limited to $100 per student plus the amounts received at $50 per student for non-resident students.

A third point which requires further definition is involved in the use of the term "student" as this term is employed in the presentation of the proposed plan of finance. It is to be presumed from the context that the term "student" applies to the actual students enrolled, although in actual operation such a plan of finance probably would have to employ some such unit as the unit of average daily attendance as the basis for computing support. In this particular the proposed plan is entirely vague and unsatisfactory.

The Present Plan of Finance

In order to understand the effects of the operation of this proposed plan it is necessary to understand clearly the plan of finance which is now in operation. At the present time the State is required to apportion to each district junior college a flat sum of $2000 plus $100 for each unit of average daily attendance. These amounts are not absolutely guaranteed since no provision has been made for making the total necessary amount available. The State apportionments are made from a combination of federal funds and moneys appropriated by the Legislature from the State general fund. A State junior college fund has been created into which are placed the amounts received from the federal government as the State's share of the proceeds derived from leases, royalties, and bonuses from the use of federal lands lying within the State. The amounts derived from this source, however, are insufficient to provide the full apportionment to the district junior colleges required by the School Code. In 1931 the State Legislature enacted a measure appropriating from the general fund the sum of $1,701,520 to augment the State junior college fund. This appropriation was reduced $100,000 by the governor at the time the budget bill was signed by him. The total amount available, however, even when this

appropriation was added to the federal receipts into the State junior college fund provided $201,178.67 less than the amount required to be apportioned to the junior college districts under the provisions of the School Code. Thus, it is apparent that the present system of state aid to the district junior colleges is uncertain and variable.

In addition to the amounts derived from State apportionments the junior college districts receive from each county of residence of students who do not reside in a junior college district an amount equal to the cost of educating such students after the amount of the State apportionment has been deducted; and also an amount equal to $65 for each such student as a charge for the use of junior college properties. Any additional funds required for the maintenance of the district junior colleges are derived by taxes levied upon the junior college district.

Junior colleges maintained as departments of high schools now receive from the State an apportionment of $1100 plus an apportionment of approximately $25 per unit of average daily attendance. They also receive from the county in which the high school district is located an apportionment of $500 plus an average daily attendance apportionment equivalent to that given to the other high school classes. This county apportionment averages approximately $60 per pupil. Any additional amounts required for the support of such junior college departments are derived from the high school district tax.

The lower division of the teachers colleges and of the State university derives its entire public support from appropriations made by the State Legislature and approved by the governor.

Effects of Proposed Plan of Finance

The principal differences between the present plan of financing education on the junior college level and the plan recommended by the Carnegie Foundation Commission are the following:

1. *District junior colleges.* The proposed plan would guarantee a fixed amount as a State apportionment for each unit of average daily attendance in the district junior colleges. This would assist in stabilizing the budgetary procedures for junior college districts. The plan would reduce the amounts to be paid as a tuition charge by the county of residence for non-resident junior college students. The average amount being paid during the current fiscal year as a tuition charge is $194.90. The non-resident tuition charge stipulated in the proposed plan amounts to $110 per student, a loss to the junior college districts of $84.90 per non-resident student, or a total loss, based on attendance data for 1931-1932 of $422,-205.23. This amount would have to be added to the junior college district taxes under the proposed plan, unless the junior colleges were to operate at a reduced total cost.

The increased amount which each junior college district would have to raise by district taxes because of the proposed method of charging non-resident tuition is indicated in Table No. 1.

The reduction from $65 to $60 as the amount chargeable per student on account of use of building and equipment for non-residents is not ex-

plained in the report. This is a fourth feature of the recommended plan which needs further clarification.

2. *Junior colleges maintained by high school districts.* The proposed plan of junior college finance would materially increase the total amount derived by high school junior college departments from State and county sources. In fact, the amounts which would be derived from these sources under the proposed plan would in many cases render it unnecessary for the high school district to provide any funds for junior college support

TABLE NO. 1

INCREASED COST TO JUNIOR COLLEGE DISTRICT

Junior college district	*Total non-resident average daily attendance* 1931-32	*1932-33 tuition charge per unit of average daily attendance*	*Total tuition charge* 1932-33	*Total tuition charge at $110 per student*	*Loss to district*
Chaffey (Ontario)	246	$166.23	$ 40,892.58	$ 27,060.00	$ 13,832.58
Compton	413	152.37	62,928.81	45,430.00	17,498.81
Fullerton	267	319.85	85,399.95	29,370.00	56,029.95
Glendale	97	221.71	21,505.87	10,670.00	10,835.87
Long Beach	63	184.50	11,623.50	6,930.00	4,693.50
Los Angeles	120	251.76	30,211.20	13,200.00	17,011.20
Marin Union (Kentfield)	239	172.51	41,229.89	26,290.00	14,939.89
Modesto	476	172.56	82,138.56	52,360.00	29,778.56
Pasadena	652	168.00	109,536.00	71,720.00	37,816.00
Riverside	87	268.43	23,353.41	9,570.00	13,783.41
Sacramento	708	155.92	110,391.36	77,880.00	32,511.36
San Bernardino Valley Union	135	225.01	30,376.35	14,850.00	15,526.35
San José	468	175.73	82,241.64	51,480.00	30,761.64
San Mateo	435	206.93	90,014.55	47,850.00	42,164.55
Santa Ana	325	284.28	92,391.00	35,750.00	56,641.00
Santa Rosa Union	130	187.64	24,393.20	14,300.00	10,093.20
Yuba County (Marysville)	112	273.28	30,607.36	12,320.00	18,287.36
Totals	4,973	$194.90	*$969,235.23	$547,030.00	$422,205.23

*Obtained by addition.

from district taxes. The exact effect has not been computed but it is evident that the present State apportionment of approximately $25 per student, plus the county apportionment of approximately $60 per student, provide considerably less than the proposed State apportionment of $100 and the county apportionment for non-resident students of $110 per student.

3. *Lower division.* The present complete support by the State of the lower division of the teachers colleges and the State university would be discontinued under the proposed plan of finance. This plan would require the State to provide $100 per student for these institutions and would transfer to the individual counties from which the students enroll a charge of $110 for each such student residing within each county. Accurate data are not available for estimating the cost to each county involved in this recommendation. Table No. 2, however, presents an estimate based upon

the most recent data available showing the approximate amount which each county would have to provide by county taxes to pay the tuition of students enrolled in the lower division of the teachers colleges and of the State university.

Since the data contained in Table No. 2 represent enrollment data for 1929-1930 and for the Fall of 1931, and since lower division enrollments undoubtedly have increased since these dates it is evident that the total amount estimated as the cost to the several counties for the tuition of lower division students, namely, $1,263,570 must be considered as a minimum estimate. It is probable that the actual cost involved in this proposed transfer of State support to the counties would be materially greater than this estimate would indicate. (For Table 2 refer to page 136.)

Criticism of the Proposed Plan

In all fairness to the Carnegie Foundation Commission it should be recognized that the purposes for which the plan was developed have much merit and that the plan is fairly logical and consistent. As stated by the Commission, the plan is intended to distribute the costs of education on the junior college level in an equitable manner, taking into consideration the comparative amounts which should be borne by the State and by the several subdivisions of the State. If we assume that the Commission had in mind that the accomplishment of this purpose required the development of a uniform plan which would apply in precisely the same manner to all institutions on this level, then we must concede that this objective has been achieved in the plan recommended, unless the plan contemplates that the State shall provide for the lower division of the State teachers colleges and the State university not only $100 per student but also any additional amounts which may be necessary to augment the revenues derived from the State and from the counties of residence of the students. If the latter supposition is correct then the uniformity of the plan is in part destroyed since it would require the State to provide considerably more for the lower division of these State institutions than would be given by the State to the junior colleges.

Entire Plan Unsatisfactory

Even though it may be considered that it was the purpose of the Commission to recommend a uniform plan of finance for the entire junior college level and even if it is granted that this purpose is achieved by the plan which is recommended, it is still obvious that the plan as a whole is entirely unsatisfactory. In the first place, any plan of finance of public education which rigidly fixes the amounts to be apportioned by the State on a student unit basis ignores the fundamental principles of equalization which require variable State apportionments in terms of variable local educational needs. In the proposed plan each institution would receive a flat sum of $100 per student from the State regardless of the actual and necessary cost per pupil in the several institutions. Moreover, the stipulation of a fixed amount to be charged uniformly for the current cost of educating non-resident students again ignores the fact that the actual costs per stu-

TABLE No. 2

ESTIMATED COST TO EACH COUNTY FOR TUITION OF NON-RESIDENT LOWER DIVISION STUDENTS

County	Number of students enrolled in lower division of teachers colleges, fall semester, 1931	Tuition charged at $110 per student	Enrollment in lower division of the State University, 1929-1930	Tuition charged at $110 per student	Total tuition charged to county
Alameda	266	$ 29,260	1,694	$186,340	$ 215,600
Alpine	.....	.....	.....	.....	.....
Amador	4	440	11	1,210	1,650
Butte	239	26,290	39	4,290	30,580
Calaveras	4	440	6	660	1,100
Colusa	16	1,760	16	1,760	3,520
Contra Costa	50	5,500	101	11,110	16,610
Del Norte	8	880	.....	.....	880
El Dorado	3	330	7	770	1,110
Fresno	529	58,190	57	6,270	64,460
Glenn	41	4,510	9	990	5,500
Humboldt	184	20,240	20	2,200	22,440
Imperial	9	990	20	2,200	3,190
Inyo	2	220	4	440	660
Kern	35	3,850	39	4,290	8,140
Kings	39	4,290	24	2,640	6,930
Lake	6	660	10	1,100	1,760
Lassen	11	1,210	5	550	1,760
Los Angeles	109	11,990	3,271	359,810	371,800
Madera	24	2,640	8	880	3,520
Marin	21	2,310	37	4,070	6,380
Mariposa	5	550	.....	.....	550
Mendocino	17	1,870	33	3,630	5,500
Merced	31	3,410	27	2,970	6,380
Modoc	8	880	8	880	1,760
Mono	.....	.....	.....	.....	.....
Monterey	22	2,420	39	4,290	6,710
Napa	5	550	32	3,520	4,070
Nevada	3	330	9	990	1,320
Orange	4	440	49	5,390	5,830
Placer	8	880	25	2,750	3,630
Plumas	3	330	3	330	660
Riverside	12	1,320	34	3,740	5,060
Sacramento	18	1,980	63	6,930	8,910
San Benito	10	1,100	7	770	1,870
San Bernardino	9	990	43	4,730	5,720
San Diego	815	89,650	86	9,460	99,110
San Francisco	483	53,130	921	101,310	154,440
San Joaquin	26	2,860	86	9,460	12,320
San Luis Obispo	22	2,420	26	2,860	5,280
San Mateo	35	3,850	25	2,750	6,600
Santa Barbara	218	23,980	17	1,870	25,850
Santa Clara	454	49,940	73	8,030	57,970
Santa Cruz	44	4,840	46	5,060	9,900
Shasta	29	3,190	19	2,090	5,280
Sierra	.....	.....	.....	.....	.....
Siskiyou	27	2,970	19	2,090	5,060
Solano	21	2,310	55	6,050	8,360
Sonoma	23	2,530	59	6,490	9,020

TABLE No. 2 (*Continued*)

County	Number of students enrolled in lower division of teachers colleges, fall semester, 1931	Tuition charged at $110 per student	Enrollment in lower division of the State University, 1929-1930	Tuition charged at $110 per student	Total tuition charged to county
Stanislaus	13	1,430	38	4,180	5,610
Sutter	12	1,320	12	1,320	2,640
Tehama	37	4,070	16	1,760	5,830
Trinity	1	110	4	440	550
Tulare	51	5,610	53	5,830	11,440
Tuolumne	5	550	11	1,210	1,760
Ventura	19	2,090	38	4,180	6,270
Yolo	9	990	26	2,860	3,850
Yuba	2	220	6	660	880
Totals	4,101	$451,110	7,386	$812,460	$1,263,570

dent vary from institution to institution. These variations are to be expected because of differences in salary schedules, variations in the number of students enrolled, and extreme differences in the types of curriculum offerings in the several institutions. These recommendations for fixed amounts of state apportionments and county tuition charges would, if adopted, require each individual district to bear the variable portion of the per student cost representing the difference between the total cost and the amount of the State and county contributions per student.

It is seldom that one sees in current educational literature any recommendations involving school finance which completely ignore all of the established principles of equalization of school support. In the Carnegie Foundation report, however, one seeks in vain to find either mention of such principles or evidence that they have been employed or even considered in the development of the recommended plan of junior college finance.

Any adequate program for financing public education must be developed in accordance with the principles of equalization and must involve at least the following steps:

1. Determination, in terms of a variable standard of cost, of the minimum level to which the State will equalize the cost of the school program.
2. Imposition of a uniform rate of district tax to be levied upon local wealth uniformly evaluated.
3. Determination of income from other sources such as tuition or county support.
4. Apportionment by the State of the difference between the cost of the standard minimum program and the combined proceeds of the uniform district tax and other revenues such as tuition and county support.

Such a plan recognizes the fact that the State must serve as the agent for equalization, not only of the educational offerings to be made available but also of the burden of support locally imposed for the maintenance of the program of education. In such a plan the State absorbs the variable

portion of the cost of a minimum program, the districts being required to bear a uniform burden of taxes for the support of this program and being permitted to levy additional local taxes to extend the program beyond the minimum.

In the plan proposed by the Carnegie Foundation Commission the opposite of an equalization plan is found. If any need exists for a revision of the present plan for financing junior colleges (without reference to the lower division of the teachers colleges or university) certainly it is not necessary to propose a plan so fundamentally and completely in violation of universally accepted principles of equalization.

The tendency in public school finance has been for some time toward broader utilization of the State as an agency for the support of public education. In the support of higher education the State has come to be the sole source of public funds. In California at the present time the State teachers colleges and the State university derive their full support from the State. Thus, these institutions are supported on a thoroughly sound and adequate plan of finance. The recommendations of the Commission would abandon this sound and adequate plan of finance in favor of a plan which would add to the already unequitable burden of local property taxes and which would impose unequal burdens upon the several counties of the State for the support of the lower division in these institutions. The only reason given for this departure from an existing satisfactory financial status is that in this way all institutions on the junior college level would be supported on the same basis. Uniformity in the method of support therefore apparently is the Commission's conception of equalization.

It is to be regretted that the Commission did not secure and follow the advice of competent authorities in the field of public school finance in the preparation of its recommendations relative to the financing of the junior colleges in California. In actual fact there probably is no urgent need for any major revision of the existing methods of financing education on the junior college level in California. Certainly to adopt such a scheme of finance as that recommended by the Carnegie Foundation Commission would be a definite backward step.

PHILOSOPHICAL ASPECTS OF CURRICULA INSTRUCTION*

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THE topic assigned me, Philosophical Aspects of Curricula Instruction, has a broad enough scope to be the title of a course in the summer session here at the University of Southern California. To treat it properly would surely take as many class-room periods as I have minutes this morning. If, therefore, I limit myself to one instead of a plurality of aspects you will, I am sure, understand the reason.

In coming to this conference or to the current summer session it seems to me that your chief object is to improve the reliability of your professional conduct and judgment. Improvement has a forward look. For instance, you study educational psychology in order that you may *anticipate* how human nature operates. You study it so that you may more accurately know what to *expect* the child will do if you as the teacher behave in a certain way. For the same reasons you are interested in an exposition of the curriculum. You wish to *foresee* with greater accuracy what activities will be in most probable demand in the social group in which particular children will live. And at the same time you wish to have some *predictable* control over the order and form of curriculum materials which will most appeal to child nature.

Scientific and Philosophic Procedures in Curriculum Construction

There are notably two ways to increase the reliability of your knowledge of constructing a curriculum and giving subsequent instruction in it. One way is scientific and the other philosophic. The one who approaches the curriculum scientifically increases the predictable value of his conclusions by narrowing down the number of variables with which he has to deal. He takes only such a number that by holding some constant he can tell what the effect will be of allowing one or more to vary. Only so can he get a consensus of agreement among those competent to judge. A concrete instance will illustrate what I mean. Could any one make a scientifically reliable detailed curriculum to be used in all the secondary schools of the United States? You have no hesitancy in saying "No." And you are right because conditions vary so much from section to section that the variables of economic occupation, racial background and the like effectively defy conclusions uniform enough to support reliable predictability. How about a scientifically constructed curriculum for a whole state? Here, too, similar difficulties obtain. General requirements may and frequently are laid down, but few would contend for their scientific exactness. And how about a curriculum for a county or city? Even here conditions vary from one school to another. The school in the "hill section" caters to a different clientele from that "down across the railroad tracks." With the

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narrowing down of the problem, however, more and more reliable results are beginning to emerge. Greater uniformities exist in the 5th grades of a limited geographical area than of a state- or nation-wide one. Constants can be set up and the effect of variables observed. The most reliable results come when a curriculum is planned not for a school or even a grade, but for a single child in that grade. But even here when a curriculum has been forecast on the basis of intelligent quotient, aptitude, home background and the like, it still may not work. A last touch of reliability must be sought in putting the forecast to the experimental test. Such, then, is the method of science, reliability through subdivision. *Divide et impera!*

Now how does philosophy contribute to the reliability of curriculum policies? Just the opposite from decreasing variables, it seeks to embrace the widest possible range of them. Here the student does not seek accuracy and predictability by confining his attention to the curriculum demands of some narrowly specific field such as biology, physics, psychology or sociology and the like. Rather does he try to take these in a single grasp to wring reliability from their totality. But how can reliability be achieved by widening the inclusion of variables? This is done by the logic of consistency. It is a time-honored axiom that a thing cannot be and not be, at the same time and place. If a certain hypothesis operates truly or successfully in biology, one would normally expect it to have the same outcomes in psychology. If the results are contradictory, reliability is impaired. If the results tend to be uniform or support each other, then prediction is made more secure.

It is from this point of view, then, that I wish to increase your self-assurance in your daily contact with curriculum problems, whether of construction or instruction. In so limited a time, however, I cannot indicate to you the consistency present curriculum procedures bear to all sciences to which education is related or upon which it draws. I shall, therefore, limit myself to a comparison of contemporary curriculum procedures with some of the twentieth century developments in the science of physics.

Before, however, adducing the corroborative evidence from this sister science let us summarize briefly what the outstanding present tendencies are in the field of the curriculum. To me these seem to be, roughly, four in number.

1. The curriculum is being put on an "activity" basis. Less and less is the curriculum viewed as rather lifeless subject-matter. Knowledge, skill, fact, hypothesis, information, and kindred expressions are increasingly looked upon as things to do, activities to be performed.

2. The curriculum is becoming more and more individualized. Prescribed curricula have been modified by acceptance of the elective principle. Electives make a more flexible adjustment to differences in capacities and aptitudes.

3. The basis for selecting the particular activities which children are to engage in is becoming that of probable use. While probable usefulness can only be figured on the basis of racial experience, tradition no longer is accepted uncritically. Recent as well as remote experiences are increasingly given weight in computing curriculum probabilities.

4. The emphasis on probabilities has moulded methods of teaching the curriculum in the direction of the problem approach. If outcomes cannot be predicted exactly, children must be taught to meet events, not as having fixed outcomes but rather outcomes which are only more or less probable.

On turning now to physics three fields of interest may be summarized which will afford valuable comparisons with these curriculum procedures.

1. One of the most interesting and far-reaching experiments in recent times has been the Fitzgerald experiment. Here it was learned that the length of a bar of iron varied when in motion. If the bar were placed parallel to the line of motion the measurement registered differently from when placed perpendicular to it. Measurements of length and breadth are thus found to be not absolute and invariable as thought by the common man and even by the expert till recently, but to be relative, relative to motion. This was one of the famous steps in the direction of the modern theory of relativity.

2. Another development of more than usual interest to physicists has been the discovery that matter is electrical in character. You are all familiar with the subdivision of matter into molecules and probably of molecules into atoms. When the physicists reached the atom they thought they had arrived at the simplest unit of matter. Their use of the word "atom" shows this. A free translation of the Greek origin of the word "atom" would be "uncuttable." In other words, the atom was thought of as a unit which could not be further subdivided or analyzed. Recent research shows, however, that the atom is composed of two charges of electricity, one negative and the other positive. Gone now is the idea that there is anything solid about matter. This chair upon which I momentarily lean does not support me because its inertia is sufficiently great to resist my weight but because its electrical forces are so organized as to push back as forcefully as I push down. Force, motion, action are thus found to be the most primary things about our world.

3. Finally, one of the most startling outcomes of modern investigation is the fact that the physicists claim to exact reliability has been shattered. Experiment with the photon will illustrate what I mean. A photon is the smallest unit of light with which the physicist at present deals. Conceive now of an aperture in a piece of paper just large enough to let through no more than one photon of light at a time. Passage through this hole tends slightly to deflect the course of the ray of light. Look at an illuminated street lamp through your umbrella and you will get a more familiar picture of what I am describing. The lamp appears much larger than it actually is because the light rays in coming through the fabric of the umbrella are dispersed. Now the interesting thing about the deflection of these minute photons is the fact that there is no way of telling which way they will jump. Some will deflect one way and some another, but the physicist is powerless to anticipate which way a particular photon will leap. All he can do is to count the number of times they jump this way and that and then give us a statement of statistical probabilities. This is quite an about-face from the physicists who have proceded for several centuries on the hypothesis that the world is a completely deterministic one. Hitherto these scientists have claimed that any errors in their statement of principles was due to the imperfection of their instruments or techniques of research. Now they no longer have that to fall back upon. The inexactness, the irrationality, appears to be in Nature herself. Thus in contrast to a world of absolute certainty we find one where reliability is rather statistical.

Now to the synthesis. Some of the conclusions must already be obvious. The tendency toward an activity curriculum certainly receives corroboration. The most fundamental thing we know about our world is its active, forceful, energetic character. We have long known that life is active. Now it turns out that even the inanimate, though still inanimate, is also to be described in the same terms. No longer can schools afford to treat subject-matter in lifeless fashion or the social heritage as the contents of a mausoleum. Courses of study, books, lesson plans and syllabi must vibrate if they would be real and true to their nature.

Individualization of the activity program also has support. The measurements of length and breadth from which one's educational garment is to be cut will vary greatly, depending on where the pupil is and where he is going. Both curriculum and pupil can be compared to the bar of iron. If the bar cannot have a fixed measurement assigned it, so too it will be found inadvisable to describe the curriculum within rigidly prescribed limits. Its content will vary from place to place and time to time. So also child personality will no longer be viewed as having characteristics that are permanent, and immutable. It will be thought of as flexible and adaptive. The activities on which it will engage will be selected relative to the purposes which will be dominant now and then and here and there. Relativity will have as welcome a home in education as in physics.

When activity and relativity are emphasized the most frequent appresion is over a loss of stability. Security appears lost. If one but peer a bit further this anxiety should be dispelled. True, it is baffling that the subatomic does not submit to exact measurement and prediction. If the conduct of a single individual photon cannot be unwaveringly predicted let us take comfort in the fact that the conduct of photons in the mass and aggregate can be. Given a large enough number of them we can compute what proportion will act one way and what proportion another, and use this as a statistical base for predicting the conduct of the single individual case. The life insurance company becomes an excellent pattern of what we are up against. Out of 100,000 people of the same age the number who will die in a given year can be reckoned with exactness. But whether you or I will be among that number is beyond prediction. Our own individual chances of living or dying can be stated by the proportion the total number of expected deaths bears to 100,000. Here, then, is our hope for stability.

The inference for curriculum construction should be patent. As activities, studies will not only be relative but will be ascertained from a careful watch and count of their previous occurrence and consequent results. Traditional curricula will not be condemned as such. Their very traditional character will lend support to the *prima facie* conclusion that generations of experience establish their usefulness as highly probable. But a traditional curriculum which does not keep its probabilities constantly revised by attention to recent instances will no more be tolerated than the actuarian tables of an insurance company which are not kept up to date by the latest mortality figures. Further, just as the insurance company computes probabilities for special as well as general forms of risk, just so curricula must be worked out which provide for the most probable activities that will be appropriate in a particular geographical locality, in a particular vocation, or for a particular temperament.

Lastly, the twentieth century development of physics definitely points to the problem method of instruction. In a world to be basicly interpreted through action, change is inescapable. If children are to be taught to meet a changing environment, the teacher's procedure must arrange to bring children into contact with uncertainties. Curriculum materials must be presented as incomplete. Answers instead of being final will be contingent. Finding solutions for vexatious social problems must be presented not in an authoritarian manner but as hazardous in outcome. The acquisition of an education far from being automatic or mechanical must be treated as fraught with risk. Only if the problem of acquiring knowledge can be made to appear full of danger and uncertainty can education ever be the challenging and adventuresome thing its foremost pioneers have known it to be.

CURRICULUM CONSTRUCTION*

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THE present century has been distinguished by a vigorous movement for curricular reform. In a sense, it may be described as a rebellion of school forces—a rebellion against the college control of admissions, and a desire to throw off from the elementary school the military inflexibility of the German system, so unthinkingly copied on the urgence of Horace Mann and Charles Brooks just before the war. It has been influenced, of course, by the pressure for new materials and new points of view; and by a demand that the nature of children be recognized. This last was an outcome of the child study movement.

The discontent arose just before the turn of the century. It led to the appointment of the Committee of Ten, which set up several programs whose completion might lead to college, and to a recommendation that secondary school subjects be commenced in the grammar school period. A later committee on economy of time showed the possibility of saving from one to two years and an earlier entrance into professional training or into the vocations.

After 1900 the movement for curricular reform gained momentum. The new objective tests afforded a means by which teachers could take stock of the value of materials and methods. They served to check the enthusiasm of emotionalists, whose stock in trade was often nothing better than impulse and wish for something different. The older type of "demonstration schools" had to give way to controlled experiment.

A climax was reached in reform with the founding of the junior high school about 1910. At that date there were 669 cities of over 8000 population. Over 80 per cent of these were organized on the 8-4 plan; the remainder offered some related scheme such as the 7-4 and the 9-4. In the twenty years since the first junior high school, there has been a rapid transition towards an articulated common school. There is no significance that the plan has assumed a variety of forms: 6-3-3, 6-4-4, 6-2-4, except to indicate that administrators are adapting the school to conditions in the local communities. There is no magic in numbers. The main point is that the junior high school is itself a curricular revolution.

Further impetus to reform was given by the World War. While old world despotisms were crumbling under the onslaughts of democracy, educators were saying: "As soon as the war is over we shall have to complete the task of reconstructing the school system. We shall have to clear away the last vestige of privilege, of tradition for tradition's sake; we shall have to make the schools instruments of service to all and agencies of social progress."

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The last twelve or fourteen years have been marked by tremendous activity. The school which has not undertaken a partial or wholesale revision of its curriculum is the exception. In many school systems, the work of revision has been complete and thorough. It has embraced all the fields of teaching and learning, and included methods, materials, and measurement from the kindergarten through the junior college. The final product is truly new, and the result is a new school.

However, no resting stage has been found. Out of the experience of twenty years has emerged the principle that curriculum revision is a continuous process. The pace may abate a bit now and then, but the task must go on systematically. As soon as an improved standard has been found, the old must give way to it. This is exactly the situation in industry. Each year sees new models in the automobile business. The model T car is superseded by model A, model A by the new V-8.

Curriculum Revision a Co-operative Problem

Curriculum revision is co-operative in nature. In the past, the teachers were given a neat little manual with all the directions and materials prepared by the superintendent or by a small group of his staff. The new curriculum is a joint product, in whose preparation every one has a share—even the patrons. True enough, they (the patrons) have usually confined their suggestions to a plea for more grammar, but often their ideas have shown an understanding of real needs.

Most of the credit for the new curriculum must go to the teachers. *First of all,* their participation has given a better product. The concert of the minds, experiences, and abilities of the many exceed in range and quality the best work of the few. *Second,* the co-operative plan recognizes an essential principle of democracy, namely, that those who do the work shall determine the conditions under which it shall be done. *Third,* it pays tribute to the common-sense idea that those who know best the needs and interests of children are the ones best qualified to satisfy their interests. *Fourth and last,* the co-operative method gives the teachers the experience and training they must have to put the new plan into effect.

About twenty-five years ago, the books written for principals and superintendents discussed at length how they might interpret courses of study to teachers, and how they might train teachers in new ideas and methods. Such discussions are no longer necessary. The teachers have become the interpreters, and have trained themselves in the us of the new tools as they make them.

Only a few instances of notable contributions to curriculum making can be cited. The fact should not be overlooked that California was a leader in the movement. Berkeley not only established the first junior high school, but was also the first to formulate a workable scheme for teacher participation in curriculum revision. Nearly ten years ago, Santa Barbara produced courses of study that were ranked among the best in the country.

The Tamalpais High School was a pioneer in vitalizing the course of study, not on paper but in actual use. Sacramento holds an important

place in utilizing the efforts of a large proportion of the teaching staff, in integrating the segments of the school, in unifying materials and method, and in expanding and enriching the elementary program. Although Bobbitt's work in Los Angeles has been thought somewhat too visionary and intangible, it was one of the inspirations of the activity curriculum which holds the center of the stage in many schools today.

Tests have been essential elements in curricular progress, and many dependable ways of exploring pupil interests and aptitudes have been devised. The books of Bobbitt, Charters, Bonser, Uhl, and Hopkins have supplied the basic factors for training and direction. Courses in curriculum development have come into all teacher training institutions, most of them since 1920. The teacher who goes out unprepared to share in a program of curriculum development is the exception.

There are many other sources of information. Surveys are a good example. That of the Modesto Junior College is recent and significant. The yearbooks of the National Society for the Study of Education are almost without exception devoted to the curriculum. The yearbooks of the Department of Superintendence contain the best reviews of curricular studies and the best suggestions on integration of school units to be found anywhere, while bulletins of the National Education Association contain excellent reports on progress.

Charters attributes the failure of the early efforts at curricular improvement to the inability of the leaders to set up a suitable program of pupil activities in harmony with their ideals. Plato, he said, aimed to produce leaders, or "guardians of the state." They should, he thought, be "philosophical, high-spirited, swift-footed, and strong." Here, his (Plato's) originality stopped, and he fell back on the methods of the past, and advised they make use of "gymnastics for training the body, and music for training the mind." Charters makes the observation that Plato was unable to establish any connection between his ideals and his education.

The same point is made by Courtis, who declares that the greatest weakness in curriculum making today is the inability to prove that the host of idealized objectives can be approached by the usual type of materials and methods found in courses in reading, spelling, history, and the other staples of the curriculum. The curriculum maker, he says, must validate his objectives.

As the writer sees it, the failure of Plato, Comenium, and other idealists arose from two reasons: first, a lack of a stable foundation such as is provided by modern science; and second, an absence of or failure to utilize a systematic method. The progress of science was accelerated many times by the formulation of the inductive method; of invention and production of the method of applied research. One of the most promising means of improving the curriculum and of saving time and effort lies through the adoption of standard procedures.

A systematic plan of work is essential. The formulation of a complete layout of techniques is properly the function of a state or national body, or of such a group as has assembled here. The time is at hand when effort may be saved by a division of labor among separate school

systems engaged in developing new curricula. These techniques may include:

1. A functional organization chart, together with a working organization chart for the local school.
2. The accumulation of data basic to understanding the local situation.
3. A standard list of specifications.
4. A progress chart for committees and administrators.
5. An experimental set-up for testing materials as they are developed. This requires a trial of the new against the old; using objective tests is essential.
6. A means by which individual teachers may connect their own contributions to the general program at any time. This is being realized by establishing a curriculum center or "clearing house" in which new units of work may be made available to committees and to other teachers.
7. A more closely co-ordinated system of schools in which the present lines of demarcation have been smoothed out, and in which courses of training and instruction have been developed through the co-operation of teachers from different segments, and which extend from one to another.
8. A better form of curriculum organization. This probably means that the old course of study outline should be abandoned, and a new scheme with the unit basis be adopted.
9. A system by which teaching may be improved. This signifies the use of pretesting devices, the analysis of the teaching process as proposed by Bursch and Niederhauser, and the harmonization of the methods employed with the methods of science.

Obviously the task which has been set is never finished. A change in administrative set-up calls for a modification of curricular practices, and *vice-versa.* Changes in the social current require a similar change in the school; and to anticipate what the future holds in the way of either is to undertake the impossible. Nevertheless, one may justify putting before you a list of propositions looking for further reform, to challenge your thought and to provoke you to evaluation and discussion; most of all, to emphasize the contention that to see things from a new point of view is essential to change, *and that change is essential to progress.* This list comprises the following points:

Platform of Curricular Reform

1. It is desirable that the trend in curricular work in the future take the direction of greater individualization.
2. While recognizing the duty to lay the foundation of good citizenship and to discover and develop useful aptitudes, it is also realized that the school should foster those special interests which express themselves in creative endeavor.
3. Continuation and extension opportunities should be generously provided, and young people taught that education is a continuous life process.
4. The school should offer to a greater extent those applications of science known as the "practical arts," to serve the needs of practical life. "Practical life consists in the dealings and activities embraced in the conduct of well-rounded members of society," to quote Charters.
5. Through curriculum revision, there should be brought about the integration of the high school and the junior college. A result should be the elimination of any undesirable duplication, a type of education which springs from the demands of life and not from the demands of the college, and an actual saving in time devoted to formal education, to the end that professional training may begin from one to two years earlier.
6. Commitment to a policy that will break down the false ideas of culture is desirable. Education should lead towards pursuits to which students are best

adapted and for which there is a genuine social need. Such a policy should stress the doctrine that traditional ideas are out of harmony with the needs and interests of this hour, and that true education requires the elimination of the purely visionary, antiquated, and unfounded elements from the curriculum, and their replacement by modern ideas and activities.

7. The broad purposes of the school as a social institution should be clearly revealed, through a scientific program of guidance, counseling and social activities, and it should be made evident that the acquisition of verbalized knowledge, synonymous in the minds of many with *education,* is not the sole or even the primary function of the school. The modern school renders a far more important service in protecting the young from economic exploitation and from immoral influences, and in promoting their natural growth and development by supplying with a favorable environment.
8. An understanding of this broader, more vital, living institution should furnish ample reason why it should preserve the faith and enthusiasm of the people; and lead them to endow it generously with those privileges and facilities which will keep it the strongest force in promoting the welfare of children and of the social body.

THE FUNCTION OF RESEARCH IN CURRICULUM MAKING*

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I. What Is a Curriculum?

IN DISCUSSING the function of research in curriculum making I shall have in mind the practical task as it confronts the school worker. The task is a broad one, looking, in general, to the development of each individual student. This development is no longer merely intellectual, and that in an extremely narrow sense, as it once was. It must include not only the whole range of intelligence, but the physical and emotional aspects of life as well. Further, it is not concerned with the child in isolation. To be of value these mental, physical, and emotional developments must take account of how they are to function in a physical and social world.

A curriculum, in its broadest possible sense, is the entire medium through which this development is effected. It is the sum total of all the stimuli to which the student responds. Such a broad meaning is hardly useful, however; so, at most, we shall have to think only of those stimuli which the school consciously selects and systematically applies as a part of the teaching program. Even here we have a cumbersome meaning, for this would include all the features of the housing, equipment, organization of the school, and all the activities of students. For these we have an accepted terminology, such as buildings, rooms, housing, organization, apparatus, library, and extra-curricular program. This leaves the term

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curriculum to cover the subject-matter—facts and activities—to be learned.

This broader setting for the term curriculum is purposely suggested here, however, because, viewed from the standpoint of a student's development, there are no such cleavages in the actual experience of the student as we have assumed. We have tried mainly to produce mental development only, and that by administering school subjects, and we have given no heed to the obvious fact of unity and breadth in the life of the student. We have assumed a total separation of mind from body and emotions, and that the mind was in responsible command. Hence we trained the mind, by exercising it and by pounding knowledge into it; we regarded body training as separate and of a lower order, and almost totally ignored the emotions; and, further, we disregarded the fact that development is useful only if it results in better adjustment of the student to his physical and social surroundings.

By this I mean to suggest that in making a curriculum we must work with the idea that we are merely supplementing the larger program of learning for the student, and that if our work is to be useful it will have to fit into that larger program, which is the program of living. It is no more correct to think of subject-matter without reference to whom or to what it is for, than it is to think of goodness without thinking of goodness for something. There is no virtue in a geometrical or historical or linguistic fact as such, there is no virtue in a physical or mental skill as such. tributing to a going concern.

II. How Are Curriculum Materials to Be Selected?

It must be apparent enough that the school cannot teach all the facts and skills there are, and that some are more useful than others. It must be equally obvious that the fitting of a fact or skill into its setting of mentality, personality, and character, *e. g.*, the presentation of the stimulus, has much to do with determining the response, and so, the meaning and value of the fact or skill to the child. Accordingly, curriculum building In each the value lies in what it does to the student; it is a case of conorganization, administration, and direct-presentation to the student. To make this task still more complex we have to keep in mind the wide variability (physical, intellectual, emotional) among students, and the consequent variability in their training needs.

To determine what facts are good we must look to their "fit" into the going concern, and not necessarily to their "fit" into systems of knowledge. "What knowledge is of most worth" is a new problem for each student. It is not knowledge of knowledges, therefore, but knowledge of human must include not only the selection of knowledges and skills, but also their nature adjusted to a social order in a physical world that marks our starting point. The "fit" of a given fact into a system of knowledge may be the most important fact of all, but it may also be the least valuable of all. That a certain flower is a daisy is one fact; that it holds a defined position in the science of life is another. To one child the daisy may stimulate

thoughts of beauty in color and form and texture, to another art designs, to another lovely perfumes, to another the science of botany. The thoughts that arise may be provoked by the flower, or by the way in which the flower is presented, or by the system of regards and penalties by which the student's obligations are defined, or by the special interests or aptitudes of the student.

This is quite enough to show that the curriculum builder must know the following things:

> He must know human nature—the whole of it, not just mental processes alone—and its capacity to be altered.
>
> He must know knowledges—systems of knowledge, not isolated facts alone.
>
> He must know the claims of the social and physical world upon the student —types of conformities that are inescapable, as well as how to utilize nature.
>
> He must know how to prepare and present stimuli with reference to changes it is desirable to make in the child, that is, the value of knowledges and skills for effecting changes in human beings.

This is a substantial demand, but curriculum making is a complex task. For its perfect solution, as yet we do not know well enough the basic sciences of psychology, sociology, and biology. These sciences will continue to contribute—but there is the problem of making curricula. It cannot await the resolution of all the puzzling fundamentals of intelligence, emotions, and physique. Further, to get good curricula we shall need more than these sciences can give us. There are educational problems that lie outside the realms of these sciences. These educational problems must be studied as such, and that is our concern here; nor need we be alarmed lest a worker in one science may encroach upon the territory of another. Thus, it is clear that educational research is a required approach in any scientific program of curriculum making.

III. What Do We Mean by Research?

As in the case of the term curriculum building, so with that of research, we shall need to realize that in addition to research in a properly restricted sense, we shall always have work to do that is not routine and clerical in character, and yet not immediately original or creative. For good reasons, the term research should be preserved for use in referring to creative work of a high order. It is a search for truth that is unknown. It implies the use of imagination, the use of exact reasoning, the systematic examination and manipulation of facts with reference to their bearing upon the purpose in question. The truth sought after must first be imagined to exist, otherwise why search? Of course a search for one imagined truth may incidentally lead to the discovery of a different truth; it may lead to the non-existence of the imagined truth; or it may lead to a discovery of the truth in a different form than that imagined. In any case, if the purpose of the search were clear, and if the methods of procedure were logical, and if the search were systematic and exhaustive, then it could be called research.

The dividing line between simple thinking and inquiry, and profound thinking and inquiry is not sharp nor fixed. The two shade into each other gradually, and in most any extended research there will be a considerable

amount of ordinary reasoning and manipulation of facts. This will be true of the researches necessary in developing the curriculum.

IV. How Is Research Involved in Curriculum Making?

With these conceptions of curriculum making and of research in mind, what are the problems curriculum makers face? An examination of the task as it actually appears in a school system suggests the following propositions:

First, a good curriculum is one that is good in operation. Subject-matter is not subject-matter until it is digested by the student. To be good in operation it must be thoroughly comprehended by those who use it, and must be supported by good teaching methods and equipment, and by good administrative techniques and procedures.

Second, it follows, therefore, that the curriculum should be made by those who are responsible for instruction, and that its making should involve consideration of teaching method, administrative direction and control, and instructional equipment.

Third, a successful project in curriculum construction should result (1) in a well-organized and properly-supported body of appropriate materials and activities for use in stimulating the learning activities of students, and (2) in a greatly improved morale in the school staff.

The steps in a curriculum making program would include:

1. Determination that a need exists for development or alteration of curricula.
2. Determination of the general and specific ends to be served by the expansion or revision.
3. Selection of materials and activities to serve these ends.
4. Organization of these materials and activities with reference to teaching aims.
5. Determination of the essentials of the teaching methods to be used and their application throughout each course.
6. Determination of the teaching equipment required.
7. Determination of administrative procedures and techniques.
8. Testing the results or outcomes of the instruction.
9. Analyzing the weak and strong features of the program as these are revealed by experiments and tests.
10. Defining the problems of revision anew.

This is a complete cycle of work and it must inevitably repeat itself over and over as the sciences of learning, teaching, and administration develop, as the student group changes, and as the social demand for training changes.

From this it is apparent that the field of research must be very wide if it is to render service to curriculum making. Underlying the solution of the problems above suggested, and bearing quite directly upon them, are the basic sciences of psychology, biology, and sociology, and above these the fields of teaching and administration. Curriculum making touches them all. To characterize this field of research, then, we need only to refer to the problems themselves, as broadly indicated by the above ten steps in a fully developed program. For each of these steps we have only to ask: What does one need to know to accomplish the ends suggested?

V. Types of Research Required

In setting up an organization for curriculum work it must be assumed that these ten units of work have to be put through. These are phases or aspects of the total task, however, and are not intended to suggest separate and distinct units of work for which the staff organization will provide. Leaving to others the question of organization of the school staff for this service, let us consider some types of research problems that will have to be faced.[1]

If a revision program is a serious undertaking it will open *every possible question* to a careful study. What purposes should the schools serve? That is, what separate curricula are needed? This is not a matter to be disposed of offhand, and it cannot be settled in the same way for all schools alike. It is a special problem that must take account of the students to be trained and of the full social consequences of their training. Studies of the students and of society are needed, therefore, to settle the question. Here is problem one in the research or study program. Before one enters upon a research he first reviews what others have done on the problem. Literature on the subject in question should be assembled and a review of it prepared for study. This review will show how this question has been met elsewhere, and will likely suggest how to formulate a plan for studying the local needs. What facts about the students and about society are required to settle such a question? If the students are essentially alike in their abilities, tastes, previous preparations, life purposes, and chances of being able to carry out their desires, then one curriculum is all that is required. If in these matters they are widely varied, then more than one instructional purpose must be met, and so more than one curriculum is needed.

Having established the fact that the students are, in all probability, going to travel in different directions and toward widely different goals, and that the goals in question are possible of attainment, the next task is to define these goals clearly enough so that paths of learning can be constructed that lead up to or, at least, toward these goals. The goals of a junior high school curriculum are different from those of the senior high school curriculum, for obvious reasons; but precisely what are the differences between two of the senior high school curricula? Here is the task of expressing the differences in human nature and aspirations in terms of differences in collections of subject-matter to be used in training.

The investigation here suggested will serve to illustrate the handling of the broader and more general types of curriculum research problems. To determine these general objectives the study must cover two lines of inquiry: First, it must gather from suitable sources, facts that indicate the general mental abilities and special aptitudes of the students, facts that indicate important features in the social inheritance of the students, facts that indicate interests and aspirations of students, and facts that indicate any physical, economic, or personality barriers that will have to be over-

[1]The writer has outlined and explained a plan of organization for curriculum construction in *The Sacramento Survey*, Vol. II, pp. 437-444.

come by students. These studies will indicate the training needs and possibilities of the schools.

Second, a study should be made that will indicate whether or not society can comfortably absorb the students if these chosen educational objectives should be attained. If at this time the facts of such a study should indicate that all high school students have the ability and desire to prepare for entrance at teacher training institutions, then, with the present oversupply of teachers in mind, the curriculum builders are obligated to consider the possibilities of other types of curricula that will lead to other less crowded careers.

The former of these two studies is equally useful when we come to the task of setting up the separate courses that are to be combined in a given curriculum. It is not a question of taking all the knowledge of a given field to form a course, nor is the organization of the materials of a given course to be based alone upon the logic of the subject-matter in question. A study of the students is necessary.

Let us take as a second illustration of how research functions in curriculum making, a problem that arises later in the program. Let us assume that we have a given course completed. We see it clearly as a unit in a curriculum. The curriculum is designed for a pre-determined end, the course has been developed to achieve a certain part of that purpose. The course is designed also with reference to a well-understood group of students. It is laid out in workable units and arranged for presentation by pre-determined methods and under defined administrative control. It is now ready to be tried out.

At this point research enters. The course has not been made by such exact methods as to guarantee its perfection. It must now be tried out in practice. This calls for the setting up of a carefully controlled experiment. The teachers have in mind, presumably, what is to be learned, and what changes are to be expected in the children as a result. They have in mind how the instruction is to be carried on. The question is, will this course do what it is intended to do? Time forbids here any full description of such an experiment. The requirements in brief are: Clearly defined aims expressed in terms of knowledges, attitudes, skills, and appreciations to be learned; clearly defined materials and activities; clearly defined methods of instruction, and finally, trustworthy methods for measuring the results of the work, involving, of course, the use of proper controls in arranging the teaching groups.

VI. Typical Points on Which Research Service Is Necessary

These two types of research problems roughly characterize the kinds that are necessary in curriculum revision work. The points where they are needed in a program are almost endless in number. There is not a single step that can be taken without facing some puzzling question. Consider the following questions:

1. What are the objectives of each curriculum?
2. What part is each course to play in its curriculum?
3. What are the materials of instruction for a given course?

4. Into what units or blocks are these materials to be organized for instruction?
5. How much time is required for a given course?
6. Which of two or more methods is best for a given course?
7. How can a course provide for wide individual differences that are known to exist.
8. What need is there for prerequisite courses?
9. Are two short courses better than one long one?
10. How are college entrance requirements involved in building courses?
11. What library facilities are required for the course?
12. What subjects should be required and what elective?
13. How does algebra justify itself in the curriculum for girls when homemaking is omitted?
14. What dates in history are worth learning?
15. Precisely what are the instructional goals in teaching technical grammar, or Shakespeare, or the story of the Battle of Marathon?
16. Which is better for the student in a given case, laboratory work or demonstration by the instructor?
17. How well have the facts of a course been learned?
18. What is the best way to develop skill in reading?
19. What curriculum adjustments are best for the exceptionally dull or exceptionally bright students?
20. What did the schools gain by carrying out a curriculum revision program?

One could go on almost indefinitely, raising questions directly or indirectly pertaining to the curriculum that cannot possibly be answered without investigation or experiment.

VII. Other Considerations of Importance

How to carry on these researches is a very important matter. If such a work does not make school work more effective, then it is superfluous. The methods of scientific research are the same everywhere in their fundamentals. They demand clear aims, straight thinking, careful selection and analysis of facts, exact measurements, and rigid exclusion of subjective elements. One must not generalize too soon nor pass lightly a single peculiar exception.

Who should handle the research work in a curriculum program? The school research division should direct it, and as far as possible every member of the staff should be drawn into it. It is the one part of the program that will do most to develop an understanding of the curriculum. Certainly our teachers are not adequately trained investigators or experimentors. We have not known until lately that research was needed in school work and so training in research techniques has not been a part of teacher training programs. It must be henceforth, and those now in the field will do well to realize that they must learn research or suffer a gradual banishment from positions of leadership in the profession.

Finally, what of the ultimate values in education? Here research must join hands with philosophy. We cannot measure our way into everything. There are places where it is a question of what we desire and not what it takes to satisfy the desire. Here we must speculate, analize our likes and dislikes. In education, however, we have been more philosophers than scientists; we have speculated and guessed where we should have measured. It is time now to shift the emphasis.

THE UNION HIGH SCHOOL DISTRICT AND THE 6-4-4 TYPE OF ORGANIZATION

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I DESIRE to preface my statements concerning the subject at hand by saying that the important points in what follows are not at all educational theory like so much of the present-day practice in education, but they are based upon conditions which have developed naturally in our district since the inception of the junior college program and, particularly, the opening of the junior high schools. I am of the opinion that no man in educational work could sit at his desk and, through his imagination, his reading of educational literature or his examination of the situation at hand, make the statements which appear in this article, because their meaning or implications could not be fully foreseen or estimated. They have come out of the crucible of the situation and the experience involved in it, and are therefore the most practical suggestions and statements one might make. They are offered to those interested, colored with a little more confidence in their value and significance than anything conjured up by the imagination or founded upon theory and opinion.

In attempting to make a statement concerning any important activity of a union high school district which also involves a junior college it seems at least wise to describe the school district under consideration so that those interested may get a picture of the type of district involved.

The Compton Union High School and Junior College districts are co-terminus in area, controlled by one board of trustees who have in their charge all the secondary pupils from the 7th grade of the junior high schools through the 14th grade of the junior college, a total of more than 4200 pupils. The union is comprised of five elementary districts with a total population between 40,000 and 45,000 people, situated between Los Angeles city on the north and west, and Long Beach on the south. On the east it is bounded by the Downey Union High School and Excelsior Union High School districts. While the junior college district is co-terminus with the high school district, it serves a very much larger area and population. Last year there were enrolled in the 13th and 14th grades of the junior college approximately 1000 students. There are about 170 teachers, five well-equipped junior high schools enrolling from 300 to 700 pupils in each, and a combined senior high school and junior college which enrolled last year about 2400 pupils. The area of the district is approximately twenty-nine square miles. It is now largely residential; however, much of it is still given over to dairying, industries and diversified ranching. The people of the district are typical of the average American citizen, earning an average living and willing to support the schools as one of the most important institutions in the community. As far as we know this is the only union

secondary district of its kind in the State, controlling as it does all the pupils from the 7th grade through the 14th. The salary schedule in the junior high schools runs from $1600 to $2250, in the senior high school from $1800 to $2600, and in the junior college from $2000 to $3000, with larger salaries for departmental chairmen and administrators.

Preceding the development of the junior high schools the ordinary 8-4 organization was in operation in the district. There was an attempt to develop the so-called intermediate school, but this institution was soon absorbed by the junior high school organization by a vote of the people and their almost unanimous support of the bond issue necessary to build the junior high schools. Five junior high schools were built, and opened in September, 1930, one in each elementary district forming the union. The sites for these schools, from nine acres to fourteen acres in extent, were purchased at various times several years previous in preparation for just such a school development.

The school years 1930-1931 and 1931-1932 were years of study and experimentation with regard to the final type of organization to adopt in the district. During the school year 1931-1932 the junior college was a five-year institution as far as the student body was concerned. This five-year student body group offered very little difficulty with regard to the general management of affairs and the control of the school. However, a careful consideration was given to the whole matter of organization throughout the two school years referred to above with the result that the 6-4-4 type of organization was put in operation in September, 1932.

Those acquainted with junior college matters are well aware that Pasadena city has had the 6-4-4 organization for some time. That, however, is a city district and, therefore, does not offer the same arguments for the 6-4-4 as we have found in the union high school district like our own. The literature concerning Pasadena has stressed the educational, social and psychological advantages of the 6-4-4 plan, in which we concur with very few exceptions. Besides these advantages, however, we see in a union district like ours, composed of different communities, other important factors favoring such a plan of organization that are even more compelling to the average citizen than those referred to concerning the Pasadena city organization. It is these factors which are so important in a union district that are to be emphasized in this article and which will, I am sure, appeal to other union districts which have desired to embark upon a junior high school program. I believe it is true that what has been done in one union high school district financially and educationally may be done in another. Any plan which seems to increase educational efficiency, to give unusual community satisfactions and, at the same time, to be more economical, should appeal to citizens and schoolmen everywhere.

Main Reasons for the 6-4-4 Organization

There are several good reasons why we have finally adopted the 6-4-4 type of organization in the Compton Union High School District. It must be kept in mind that in considering these reasons we are dealing with a

union high school district and not a city district. Among the reasons which are to be mentioned, there are two unusually important ones that seem to apply particularly to a district such as ours.

Economies in 6-4-4 Plan of Organization

The first important reason is the economy of the plan. The plan is more economical because:

(a) By placing the 9th and 10th grades in the five junior high schools in the district, considerably over 50 per cent of the high school students who were in the four-year union high school two years ago and who were transported by buses and street cars to the main high school plant from the outside districts no longer will be transported. With the development of a junior high school in each elementary district, this cost of transportation is to be almost entirely eliminated because of the proximity of pupils to the junior high schools scattered throughout the district. This means a very large and important saving every year.

(b) A saving will be made due to the fact that the 9th and 10th grades will be educated in the junior high schools, which have a lower wage scale for teachers than the senior high school or junior college. Those teachers who were teaching the 9th and 10th grades in the senior high school at a larger salary have been transferred to the junior high schools at the junior high school salary scale. Since the junior high schools are new institutions there are many teachers making up their faculties who, while unusually well trained, have not had many years of experience, which thereby has kept the total salary cost down, since the salary paid is based upon years of experience as well as training.

(c) A saving will be made due to the fact that the curricular offerings in the junior high schools will be fewer in number for the 9th and 10th grades than if they were in the senior high school. For instance, we have definitely planned to eliminate all foreign language in the junior high schools with the exception of Latin. This makes a very important reduction in cost in the foreign language program because in the senior high school we have had many students in the 9th and 10th grades take foreign language, and Spanish particularly. The writer is under the impression that money is probably being wasted in the senior high schools in the foreign language program because many students, upon their entrance into the senior high school, and in many places in the junior high schools where foreign languages are offered, take a foreign language largely because of the novelty of the situation and not because they are planning to make use of the language or learn it very completely. Under such circumstances, the so-called "carry-over" is insignificant. It is because of this belief and others that the Compton Union Secondary Schools are eliminating from the junior high school program all foreign languages except Latin.

(d) There will also be a saving due to the program in athletics, since no hard baseball nor American football will be played in the junior high schools. Both these sports, and particularly American football, are very expensive activities and tend to grow more and more expensive as the

years move along. There will be no so-called interscholastic competition with schools outside of the district, with all of its expensive rivalry and equipment. The four-year junior high schools will continue to have their own inter-school and district athletic competition controlled entirely by the district of which they are a part, just as the three-year junior high schools have had in the past. The development of the four-year junior high schools will also eliminate from the senior high school the lower classifications in sports, such as the C and D teams which we have carried on in football, basketball and track.

(e) There will be a saving effected in the development of the shop program in the junior high schools, since the shops will be so-called general shops instead of a group of highly equipped, expensive, special shops which are now found in the junior college plant and which were frequented in the past by large numbers of the 9th and 10th grade boys. The cost per pupil will be materially reduced in these shops, and it is believed that there will be no real educational loss for the boys in the 9th and 10th grades.

(f) Another important saving which is more or less the outcome of the changes in the curriculum will be due to the fact that with the elimination of too much foreign language, with a restriction of the athletic program, and with the development of the general shops, there has come about a reduction in the number of teachers required to handle the same number of pupils in the junior high schools as compared with the number of teachers we have had in the 9th and 10th grades in the senior high school. Those acquainted with the cost of education know that from two-thirds to three-fourths of its cost is in the salaries paid teachers and, therefore, with a reduction in the number of teachers a material saving is always made.

Community Satisfaction in Outside Districts

The second very important reason why we have adopted the 6-4-4 plan is that the plan of organization will satisfy the pressure of local prestige and civic pride in the outside elementary districts making up the union. One definite and important attitude which has been developed in a union district such as ours on the part of the outside districts is a feeling that the community in which the main senior high school plant has been constructed and developed has gained more financially, commercially, socially, and educationally than any of the outside districts which have constantly contributed to the upkeep of this main educational center. Because of this fact realtors, business men, professional men and P. T. A. workers in each outside district are beginning to realize that, with the development of the four-year junior high schools and the retention in those junior high schools of the 9th and 10th grades, the outside communities are at last coming into their own with regard to their share of the educational program of the district. In a union district this particular reason is a very important and powerful one. It is one which the writer has heard expressed many times and which ought to be met as far as possible for the best interests and continued unity of many union high school districts. Nothing in the history

of the union district has given any more community satisfaction to the outside districts than the development of the junior high schools, the construction of a building in each outside district, and the realization that the outside districts are sharing more fully than ever in the educational program supported by the taxpayers of the whole district.

Another important factor, which is closely allied to what has been mentioned above concerning community satisfaction and civic pride, is the fact that the parents of the young people of junior high school age are very much interested in keeping those young people as near home as possible during their junior high school days instead of having them transported by buses and street cars to the main senior high school plant several miles away. No matter what may be the program of transportation by bus or street car, there are always situations which are likely to develop in such a transportation program not for the best interests of the young people being transported. The parents realize this and are, therefore, very much concerned with the fact that the young people may be freed from this transportation problem during the two years of their junior high school education, and be educated within the confines of their own community.

The two reasons mentioned above, that of the economy of the situation, and that of the community satisfaction and civic pride of the outside districts, are the two important reasons which have decided the type of organization of the Compton Union High School District, not, however, forgetting the educational advantages constantly involved.

In conclusion, may I again emphasize that we are keeping in mind the educational, social, and psychological advantages of the 6-4-4 organization because they appeal to us very decidedly. These advantages are not to be forgotten or minimized because the other advantages which have been mentioned in this paper are being emphasized. However, I believe that every union high school district having an organization similar to the one to be found in the district under discussion will be able to make the same savings that we are making in the development of this type of organization. I believe without question that every schoolman should examine his educational program very carefully, should be sure that the work that he is doing is not being done because other institutions are doing it or because it is the style or because tradition indicates that such a program ought to be carried on, but that he should be sure he is not wasting money on what may be defined or may appear as good educational theory, rather than a practical advantage to the students and to the community which he represents. I am convinced that secondary schools are wasting money at the present time upon their educational program because the results of such a program over the past years do not warrant the expenditure of money which is now being made. It is with these matters in mind, particularly, that the Compton Union Secondary Schools have moved to the 6-4-4 plan of school organization.

THE VALUE OF SECONDARY SCHOOL SUBJECTS IN THE PREPARATION FOR MEDICINE

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Choice of High-School Subjects by Students Who Plan to Enter the Profession of Medicine

COUNSELORS, home-room teachers, principals, and others responsible for the guidance of high-school students have not only the task of assisting them in the choice of an occupation, but also the responsibility for aiding them in their choice of subjects in preparation for their chosen occupation. The decision as to what subjects should be taken by those planning to enter the professions is more difficult than that to be made by those who plan to go directly from high school to occupations. This results from the fact that secondary-school workers are not directly concerned with training for the professions and consequently are less certain regarding the subjects prospective professional workers should study while in high school. In an attempt to obtain more valid information for the profession of medicine, the following summary was made of the thinking of the leaders in the training for the medical profession.

For many years deans of medical schools and other leaders in medical education, in the words of one dean, have "discussed and fought, decided, compromised and reversed concerning the problem of premedical education in secondary schools and colleges." Almost innumerable articles have been written putting forth logically reasoned arguments for attention to mathematics and science in the premedical college and high-school work, while others, with similar impressiveness, stress the need for cultural training for the prospective doctor. Many have failed to recognize that two things must be kept in mind: first, what premedical training is desirable or necessary preliminary to the actual study of medicine; and second, what premedical training will be of value to the doctor as a professional worker and as a citizen. Dr. Stuart Graves has stressed the need of attention to both of these uses of premedical training while at the same time emphasizing the importance of the scientific studies.[1]

William Gobb Smeaton[2] has suggested that prospective doctors should include the following in their high-school program of studies: two years of Latin, two years of German or French, one year of physics, one and one-half years of algebra, one and one-half years of geometry, and one-half

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*On leave from Teachers College, Columbia University.

[1]Stuart Graves, M. D., "The Relationship Between Premedical and Medical Education." Reprint from *The Journal of the Medical Association of Georgia* (December 1929), Vol. XVIII, especially pp. 6, 11, 12, 13, 14.

[2]William Gobb Smeaton, "Some Aspects of Premedical Education," *Journal of the Association of American Medical Colleges* (May 1930), Vol. V, pp. 146-151.

year of trigonometry. Other subjects, he indicated, were not so important, although biology and chemistry were good to take. He also indicated that it is possible to secure a suitable and relatively uniform training in the high school to correlate with premedical instruction. He suggested that a pamphlet containing precise information about all premedical requirements and dealing with co-ordination between secondary-school and college instruction would be very helpful to high-school administrators.

In comparatively recent years a more experimental and scientific approach has been made to the problem of premedical education. Thorpe[3] grouped students according to the number of hours of work they had had in science and then compared their grades in medical-school courses. He found the differences were not significant, especially for good students. He concluded that the good student does not have to prepare himself for a medical career by electing an inordinate amount of chemistry, physics and biology in college, and more cultural material should be included in the premedical curricula.

While not directly concerned with premedical training, two recent studies have been reported in the *School Review*[4] which have a close relationship to the problem under consideration. One study is that made by James Anderson Yates published as a Bulletin of the Bureau of School Service of the University of Kentucky under the title "The Type of High School Curriculum Which Gives the Best Preparation for College" and cited in the *School Review*. The author had at hand for his use complete high-school and college records and certain other types of evidence (including measures of mental ability), for 706 graduates of the University of Kentucky, Indiana University, and the University of Cincinnati. University graduates whose entrance credits were from the same high-school curriculum were paired according to approximately equal mental ability, and no significant difference was found in their college success or rank. Some of the conclusions were as follows:

1. The influence of the type of high-school curriculum was negligible.
2. The chances are largely in favor of the success or rank earned in any of the four types of high-school curriculums leading to similar success or rank in college.
3. The multiple correlations between high-school subjects and college success were nearly equal in the three universities, but were low, emphasizing the importance of additional factors in high-school and college marks.
4. This study does not find sufficient facts to justify colleges in prescribing certain subjects for college admission. However, the facts found do warrant colleges in demanding a high-school curriculum well done.

The second is an unpublished investigation by P. Roy Brammell and pertains to students at the University of Washington in Seattle. Brammell found little or no advantage of any one academic subject over the others in college preparation, and he found only a small advantage for students who had had only academic work in high school as compared with those who had had considerable amounts of non-academic work.

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[3]Edward S. Thorpe, Jr., "Relative Value of Cultural Courses in Premedical Training," *Journal of the Association of American Medical Colleges* (March 1931), Vol. VI, pp. 79-84.

[4]James Anderson Yates, "The Type of High School Preparation for College," *School Review* (January 1931), Vol. XXXIX, pp. 8-9.

F. A. Moss[5] attempted to determine the relative efficiency of various means of predicting success in the medical school. He took no consideration of the actual subjects studied, but introduced a relatively new feature in the use of aptitude tests. Scores of about 900 students correlated .59 with first-year medical marks and .54 with second-year marks. When combined with premedical marks, the reliability of the prediction was increased. The predictive value of the personal interview was studied. While it was not found to be high, it was considered worthy of further study. Some schools require more than two years, or sixty semester hours, of premedical work and give preference to students having more than this amount. In a study of almost 1000 students, the correlation between the number of premedical credits presented on admission and freshman medical marks was found to be only slightly above zero. The distribution of marks in the group having only the minimum of 60 semester hours did not differ materially from the groups having 120 or more semester hours. This study did not report that mental ability was held constant. This is a factor which might have had some effect on the outcome. The percentage efficiency of the various criteria in predicting failures is as follows:

Semester hours of premedical credit	22
Interview ratings	33
Premedical grades	43
A combination of grades, tests and ratings	67
Test scores	69
A combination of grades and test scores	73

The percentage of efficiency represents the percentage of successes that would have been selected by the various criteria, minus the percentage of successes that would have been excluded by each criteria.

Davison[6], while not reporting in detail, indicates that at Johns Hopkins University School of Medicine judgments of science teachers as to character and intelligence rather than the quantity of the preparation has reduced failure from more than 15 per cent to less than 2 per cent.

Smeaton[7] reported a study conducted by the Bureau of Vocational Guidance at the University of Michigan. One hundred thirty-five students who had all varieties of preparation varying from the Ph. D. degree to the minimum preparation required for admission to the medical school were studied. No correlation was found between the time devoted to college work before admission and accomplishment in the professional school.

Davison[8] in suggesting an extra year be spent in a hospital rather than a third year in premedical work indicated that he believes that this additional year which is frequently recommended for the study of German or French is not necessary. Much of the best is now translated, and those who need it will acquire it, while others will forget it. He states that at Johns Hopkins University School of Medicine every entering student can

[5]F. A. Moss, "Aptitude Tests for Medical Students," *Journal of the Association of American Medical Colleges* (January 1931), Vol. VI, pp. 1-16.

[6]W. C. Davison, "The Selection of Medical Students," *Southern Medical Journal* (December 1927), Vol. XX, pp. 955-960.

[7]William Gobb Smeaton, *op. cit.*

[8]Wilburt C. Davison, M. D., "An M. D. Degree Five Years After High School," *Proceedings of the Annual Congress on Medical Education, Medical Licensure and Hospitals of the American Medical Association*, 1928, pp. 18-19.

read in some fashion or other German and French. However, four years later, at the time of graduation, less than 10 per cent of the students can read either language at all as a result of disuse. He concludes that either these languages should be discarded as entrance requirements or else the medical schools should resort to grammar school methods and hold frequent recitations in German and French.

Although the afore-mentioned studies are helpful, there still exists a very great uncertainty as to which subjects are of value. The standards and suggestions of the leading American medical organizations are summarized below, and the premedical requirements and recommendations of medical schools were studied. The main investigation reported herein secured the judgments of those who are largely responsible for medical education, namely, deans of medical schools. Their trained and experienced judgment is believed by the present writers to be the best basis of procedure until satisfactory scientific evidence is available.

Recommendations and Standards of Medical Organizations

Prior to 1904, little attention was given to the character or quality of the premedical training. It was in this year (1904) that the American Medical Association first secured the passage of a regulation demanding four years of high-school work previous to beginning the study of medicine[9]. This, in the light of present conditions, represents a low standard. Medical schools flourished, and in 1906 there were 162 medical colleges in the United States[10]. This number has since been reduced to 76. In 1910, the famous Flexner Report[11] turned the spotlight on actual conditions in medical education, and medical associations immediately set themselves to the task of improving the status of medical education and of the profession. In 1914 the American Medical Association set one year of college work as the requirement for admission to a medical school, and in 1918 this requirement was raised to two years of college work (60 semester hours), including courses in physics, chemistry and biology[12]. No higher standard has been set and the Council on Medical Education of the American Medical Association requests that the minimum standard of premedical education required for the license to practice medicine be not advanced beyond two years' college work[12]. In addition the Council has made some suggestions regarding individual subjects to be included in college work preparatory for medicine. These have been adopted by many state boards of medicine licensure and set up as requirements[13].

The Association of American Medical Colleges has set up a requirement of a minimum of 60 semester hours of work in institutions approved

[9]John M. Dodson, M. D., "Twenty-five Years' Progress in Medical Education in the Department of Administration," *Proceedings of the Annual Congress on Medical Education, Medical Licensure and Hospitals of the American Medical Association*, 1925.

[10]Morris Fishbein, "The Function and Future of the American Medical Association in Medical Education," *Proceedings of the Annual Congress on Medical Education, Medical Licensure and Hospitals of the American Medical Association*, 1930, pp. 3-7.

[11]Abraham Flexner, "Medical Education in the United States and Canada; a Report to the Carnegie Foundation for the Advancement of Teaching." Carnegie Foundation for the Advancement of Teaching. Bulletin 4, 1910.

[12]Editorial, *Journal of the American Medical Association* (August 17, 1929), Vol. XCIII, pp. 547-548.

[13]Announcement of the University of Chicago Medical Schools, June 15, 1930. Vol. XXX, No. 27, pp. 19-20.

by accrediting agencies for admission to medical colleges. This work must be of the same standard as is required for the baccalaureate degree and must include the following:

Subject	*Minimum total semester hours*	*Minimum semester hours of laboratory work*
General Chemistry (to include quantitative analysis)	8	4
Organic Chemistry	4	0
Physics	8	2
Biology	8	4
English Literature and Composition	6	–

Those having 60 semester hours, but who lack full requirements in not more than two of the required subjects, may be admitted on successfully passing examinations in these subjects. Those with 90 semester hours of work who lack any or all of these requirements may be admitted on examination. A member school may substitute a six-year combined collegiate and medical curricula for the above. The "combined course" is an arrangement whereby part of a university's offering in medicine may be credited toward both a college and a medical degree. Thus in many institutions students are permitted to substitute the first year of medical school work for the last year of work in a college, receiving a degree from the college at the end of the first year's work in medicine and receiving the medical degree at the completion of the medical course. This materially shortens the total time spent in premedical and medical study and still permits students to obtain two degrees.

Several states have fixed certain minimum educational requirements for admission to medical schools and the study of medicine. In general these requirements are very similar to those given for the above associations. New York and Ohio are examples of states which follow this policy.

Entrance Requirements of Medical Schools

In 1928 Davison[14] reports that 81 per cent of the Class A medical schools require two years of collegiate work for admission, with preference usually given to the student who has attended three or four years.

Graves[15] in 1929 reports a tabulation of the admission requirements of all Class A medical schools in the United States. He named fifty medical schools, or about two-thirds of the total number, that have entrance requirements higher than the minimum association requirements of 60 hours. He reports further that even those that carry the minimum association requirements in their catalogues give preference to those, among the excessive applicants, who are prepared best.

The present writers studied the statements of 1929-1930 announcements of arts colleges and medical schools for twenty-eight institutions representing all sections of the Untied States in order to determine the present position of medical schools in regard to subjects required or recommended for entrance. Thirteen of these definitely required more than two years

[14]Wilburt C. Davison, M. D., *op. cit.*
[15]Stuart Graves, M. D., *op. cit.*

of premedical work, two of the thirteen set up a bachelor's degree as the requirement for entrance. The requirements and recommendations for individual subjects are reported in Table I. No tabulation was made for high-school or college work unless specific mention was made as to a requirement or recommendation for medicine. Only four institutions stated

TABLE I.

ENTRANCE REQUIREMENTS AND RECOMMENDATIONS OF TWENTY-EIGHT PROMINENT MEDICAL SCHOOLS, 1929-1930

	High School			*College*		
Subjects	*Recommended*	*Required*	*Total*	*Recommended*	*Required*	*Total*
English	2	4	6	3	23	26
Latin	....	....	....	2	....	2
French	....	....	....	1	....	1
German	....	....	....	1	....	1
French or German	3	1	4	1	18[1]	19
Two units of a Foreign Language	2	3	5	....	....	....
Greek	....	....	....	2	....	2
French, Italian, Spanish, or German[1]	....	....	....	1	....	1
Foreign Modern Language[1]	....	....	....	....	1	1
Four quarters of Foreign Language	....	....	....	....	1	1
Latin and French and German[1]	....	....	....	....	1	1
Latin, High School or College, and French or German[1]	....	....	....	....	1	1
Two units of Latin, French, German or Greek	....	1	1	....	....	....
Three units in a Foreign Language, or two units in each of two	1	....	1	....	....	....
Mathematics	5	4	9	6	3	9
Political Science	....	....	....	1	....	1
Sociology	....	....	....	3	....	3
Economics	....	....	....	2	....	2
History	....	....	....	2	....	2
Social Studies and History	1	1	2	1	1	2
Biology	1	....	1	1	12	13
Chemistry	4	1	5	1	27	28
Physics	4	1	5	1	27	28
Zoölogy	....	....	....	1	11	12
Two units from Biology, Chemistry, Physics	....	1	1	....	....	....
Two units from Biology, Botany, Zoölogy, Physics	1	....	1	....	....	....
Biology or Zoölogy	....	....	....	....	3	3
Anatomy	....	....	....	3	1	4
Histology	....	....	....	1	....	1
Embryology	....	....	....	3	3	6
Bacteriology	....	....	....	2	1	3
Physiology	....	....	....	2	1	3
Drawing	....	....	....	3	....	3
Psychology	....	....	....	5	3	8
Logic	....	....	....	1	....	1

[1]One of these requires a reading knowledge.

a definite requirement of some high-school subject. These requirements were in English and mathematics. Three institutions require two units of foreign language in high school. The number of institutions making a recommendation as to the high-school work is also very small, with four recommending chemistry, four physics, three French or German, and three mathematics. In the college work, twenty-seven state a definite requirement of chemistry, twenty-seven require physics, twenty-three requiring English, eighteen French or German, twelve biology, eleven zoölogy, and other scattered requirements, especially in the foreign language and science fields. In general, the requirements are identical with those set up by standardizing agencies and presented above. It is apparent from reading the catalogues that the number requiring individual subjects is larger than here reported. These requirements are often not mentioned in connection with entrance to the medical colleges when they are the same as the requirements for entrance to the arts college, or the same as the requirements for entrance to the senior arts college. Thus, although some subjects may be important prerequisites for entrance to the medical school, the prospective student gets no idea of this relationship from a reading of some of the catalogues.

Survey of the Judgments of Medical School Deans

In preparation for securing the judgments of deans of medical schools, a list of subjects was drawn up concerning which deans of medical schools were requested to consider: (1) the extent of contribution of each of the subjects in preparation for medicine, and (2) the desirability of studying them in high school or college, or both. In indicating the importance of a subject in the training for medicine, they were asked to indicate the extent of contribution by checking whether it was: (1) essential, (2) of large value but not essential, (3) of small value, or (4) of no direct value. As to the place of training, they were asked to check whether it should be studied in: (1) high school, (2) college, (3) either high school or college, or (4) both high school and college. Deans of medical schools throughout the country responded readily and indicated their interest in the survey in letters and comments, parts of which will be quoted. Returns were received from forty-eight deans, which represents about two-thirds of the Class A medical schools in the United States.

Importance of the Various Subjects as Judged by Deans of Medical Schools

The percentage of the total number of deans who ascribed each of the four values to the individual subjects is indicated in Table II. It can thus be seen that 23.0 per cent of the deans who rendered their judgments as to the value of Latin regarded it as essential, 68.8 per cent considered it to be of large value, 6.3 per cent designated small value, and 2.1 per cent stated that it was of no value. With almost no exceptions those who replied gave their judgments on every subject in the list. Figure 1, a graphic representation of Table II, portrays vividly the relative importance of the various subjects according to the judgments of deans. Biology, chemistry, and physics were judged essential by over 95 per cent of the deans, and zoölogy was considered essential by slightly less than 90 per cent. Ele-

mentary algebra and plane geometry were the only other subjects designated as being essential by as many as 50 per cent of those reporting. When the two values, "essential" and "large value," are combined it will be noted that Latin, French, German, all mathematics, the social studies, and public speaking are judged to be of considerable importance. In an effort to summarize the varying judgments Figure 2 was developed. A system of weighting was used which gave a value of three points to each judgment of "essential value," two points to each judgment of "large value," one point to each of those of "small value" and no points for judgments of "no direct value." The total number of points for each subject was calculated and divided by the total number of deans who gave a rating on the particular subject. Here again, the sciences, already named,

TABLE II

THE IMPORTANCE OF VARIOUS SUBJECTS IN TRAINING FOR MEDICINE AS INDICATED BY DEANS OF MEDICAL SCHOOLS

	The Percentage Assigning Each Value			
Subject	*Essential*	*Large Value*	*Small Value*	*No Value*
Latin	23.0	68.8	6.3	2.1
French	43.8	41.7	10.4	4.2
German	52.1	37.5	4.2	6.3
Spanish	4.2	6.3	27.1	62.5
Algebra (El.)	66.7	18.8	6.3	8.3
Algebra (Adv.)	41.7	29.2	10.4	18.8
Plane Geometry	52.1	23.0	12.5	12.5
Solid Geometry	27.1	33.3	18.8	20.8
Trigonometry	35.4	31.3	18.8	14.6
Civics	20.8	31.3	12.5	35.4
Sociology	20.8	50.0	14.6	14.6
Economics	10.4	56.3	20.8	12.5
Ancient History	20.8	37.5	18.8	23.0
Modern History	23.0	35.4	16.7	25.0
American History	25.0	35.4	14.6	25.0
Geography	12.5	25.0	20.8	41.7
Shorthand	2.1	18.8	18.8	60.4
Typing	2.1	20.8	16.7	60.4
Bookkeeping	0.0	10.4	23.0	66.7
Business Management	4.2	10.4	25.0	60.4
Commercial Law	2.1	10.4	29.2	58.3
Biology	95.8	4.2	0.0	0.0
Chemistry	100.0	0.0	0.0	0.0
Physics	97.9	2.1	0.0	0.0
Zoölogy	89.6	6.3	0.0	4.2
Physiology	29.2	20.8	20.8	29.2
Manual Training	2.1	18.8	16.7	62.5
Machine Shop	2.1	4.2	25.0	68.8
Mechanical Drawing	8.3	20.8	18.8	52.1
Public Speaking	12.5	39.6	23.0	25.0
Dramatics	0.0	6.3	10.4	83.3

the foreign languages with the exception of Spanish, and elementary algebra and plane geometry receive the designation of "large value" or better. The other subjects of the mathematics group, all of the social studies, physiology, and public speaking place about midway between

FIGURE 1.
PER CENT ASSIGNING EACH VALUE

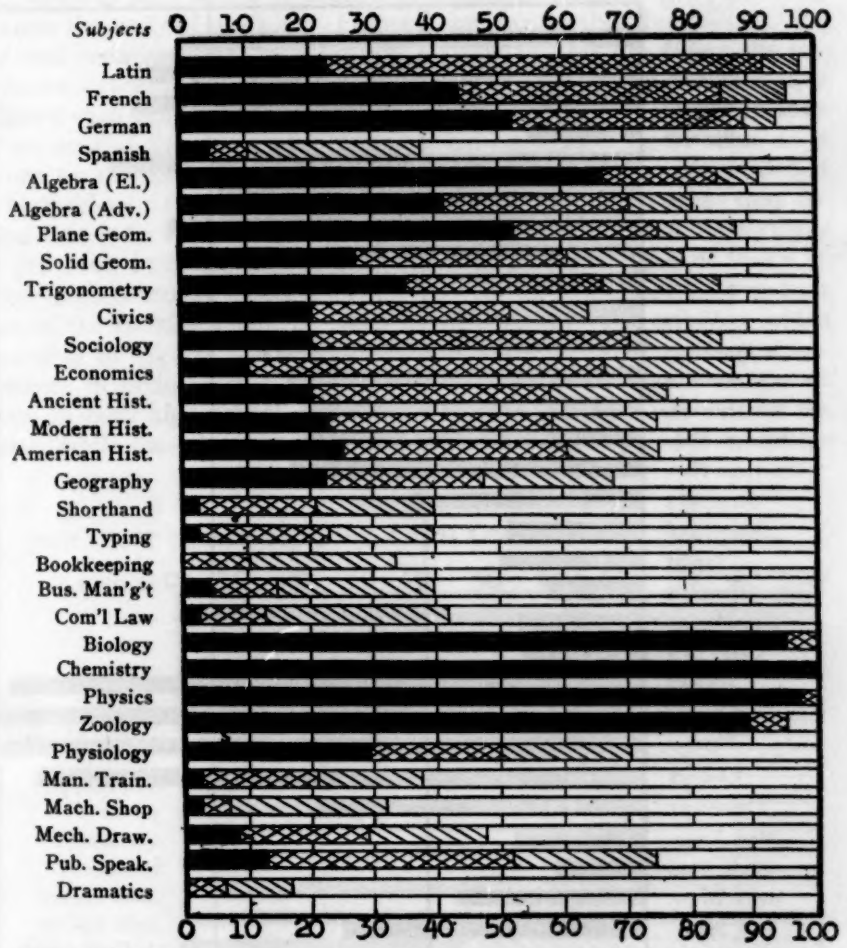

FIG. 1. The importance of various subjects in training for medicine as indicated by the per cent of the deans of medical schools assigning each value. (Black, essential; cross-hatching, large value; single-hatching, small value; in outline, no value.)

"small" and "large value," while all other subjects were not recognized as having as much as "small value" on the basis of these combined or weighted values.

Although English was omitted from the list of subjects submitted, it is generally accepted as being very important. Several deans inquired regarding its omission and volunteered a statement emphasizing its importance. One dean expressed the opinion that "the most important courses offered in either high school or in college are the courses in English." He bases this statement on "the hope that the student may acquire literary experience and become a reader of books."

Other letters which accompanied the replies emphasized the already evident variation of opinion as to the basic importance of the several sub-

FIGURE 2—VALUES

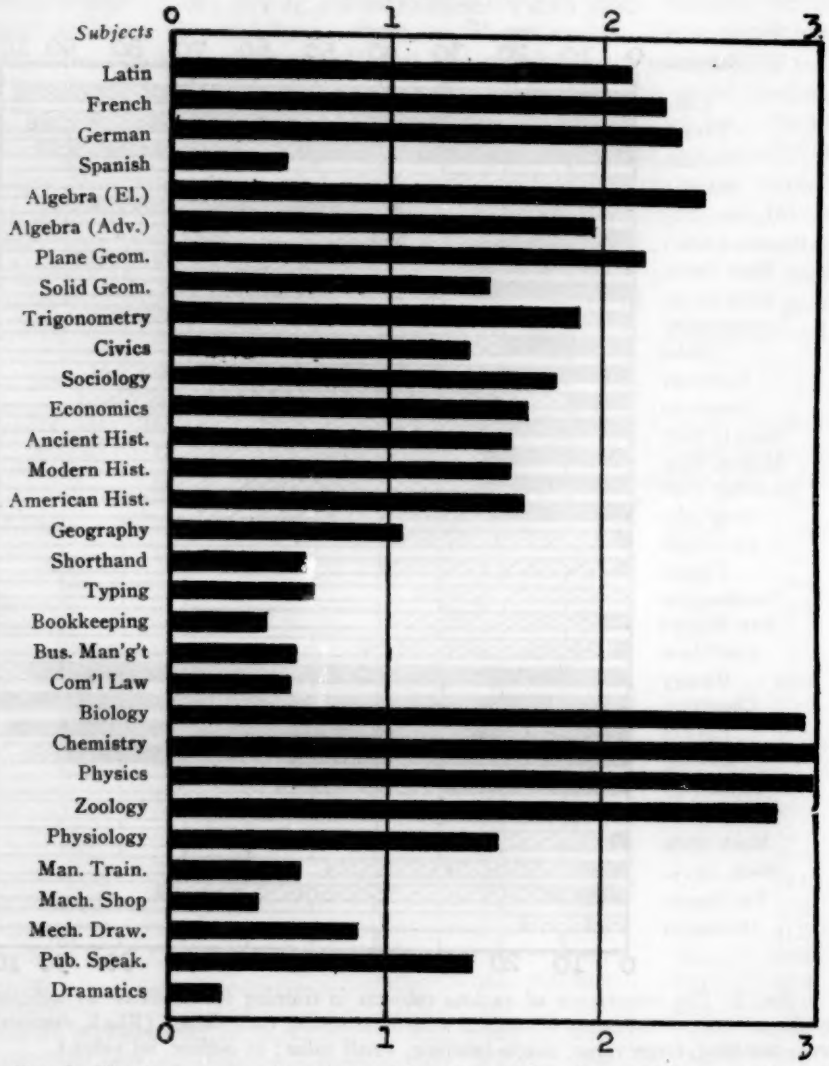

FIG. 2. The importance of various subjects in training for medicine as indicated by weighted values assigned to the opinions of deans of medical schools. (0, no direct value; 1, small value; 2, large value; 3, essential.)

jects. A number of deans expressed the view that "premedical preparation must be more or less an individual matter," that attention should be given to "the development of good intellectual habits and the development of general interests rather than acquiring specific knowledge." Others called attention to the importance of a "broad cultural training in addition to training in the premedical sciences."

Recommended Level of Training for Different Subjects

Deans of medical schools made recommendations as to the place in the premedical training program at which the different subjects should receive

attention. Thus they indicated as to whether a particular subject should be studied in high school or college, or in college only, by those intending to enter the study of medicine. Figure 3 summarizes their judgments. The per cent recommending each location of training does not reflect the importance attached to various subjects but indicates the level at which they believed each subject should be studied. Thus in Figure 3, approximately 67 per cent of the deans who recommended Latin as being of value as is shown by the black bar opposite Latin, believed that it should be studied in high school. Over 17 per cent, as shown by the cross-hatched bar, advised that it be studied in both high school and college, and slightly over 15 per cent, indicated by the single-hatched bar, advocated its study in either high school or college. Thus, 100 per cent specified that at least part of the training might be taken in high school. The sciences, which according to Figures 2 and 3 were designated as being of the largest importance in preliminary training for medicine, are considered worthy of study in both high school and college by approximately one-half of the deans, while the other one-half thought they should be studied in college

FIGURE 3.

PER CENT RECOMMENDING EACH LOCATION OF TRAINING

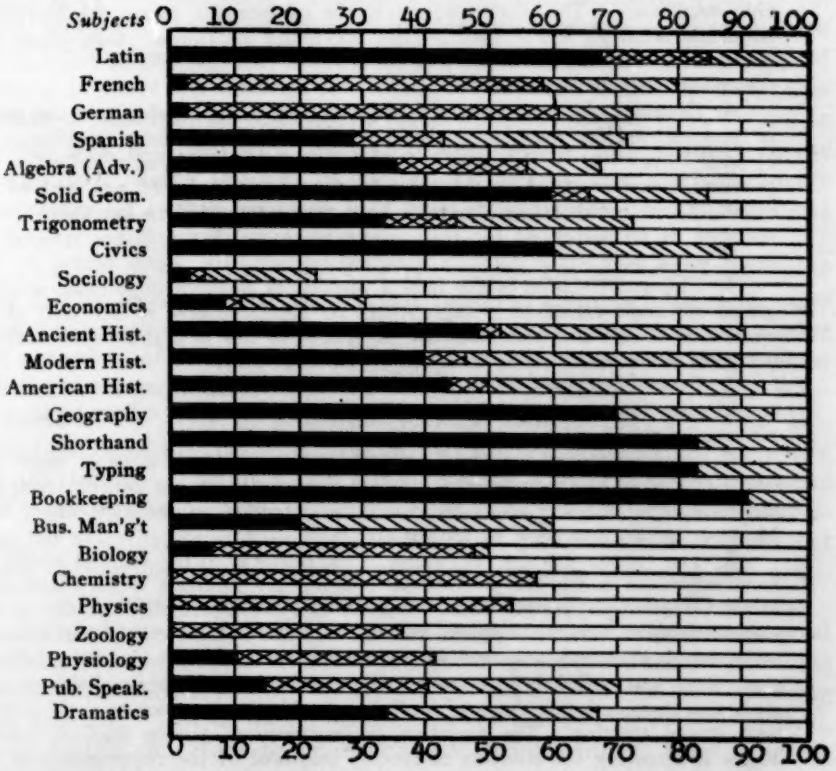

FIG. 3. Place of training in various subjects as recommended by deans of medical schools. (Black, high school only; cross-hatching, both high school and college; single-hatching, either high school or college; in outline, college only.)

only. There is a noticeable tendency to place those subjects on the high-school level which were indicated above as of lesser importance, while those of greater importance are assigned to both the high school and college, or to either, or to the college alone. In general, however, the deans do not differentiate clearly between the two levels of training.

Implications for Guidance

The summary of the judgments of deans of medical schools should be of value in any consideration of the pre-professional training of those contemplating a career in the field of medicine. Their recommendations represent the best informed judgments that can be obtained. A careful analysis of the data presented reveals significant inferences for guidance.

1. Tabulated judgments, college announcements, and letters from deans of medical schools all emphasize the two-fold nature of the preliminary training for medicine. The cultural subjects are stressed for their importance to the individual, while the sciences are considered valuable as a basis for the later medical training.

2. Chemistry, physics, biology and zoölogy are judged to be of largest importance in the order named. While approximately one-half of the deans recommend that they be studied in college only, the other half recommend their study on both levels.

3. Elementary algebra and plane geometry are considered to be of considerable importance. The other subjects in the mathematics group are considered important although less so than the two previously mentioned. Only about one-fourth of the deans recommend that the study of these subjects be deferred until the college period.

4. German, which is considered important by a large majority of the deans, is recommended for attention at the high school level or at both or either levels by over 70 per cent of the deans. French, which is considered slightly less important, is recommended to the same level of training by 80 per cent of the deans. Latin, which ranks almost as high as the two modern languages in importance, is recommended for high school alone by almost 70 per cent of the deans, while none would defer its study entirely until the college period.

5. The social studies which hold a position of medium importance are suggested for some attention in high school by approximately 90 per cent of the deans. Sociology and economics are exceptions to this in that approximately 70 per cent of the deans advise their study in college only.

6. Public speaking, which is the only other subject to receive a rating of considerable importance, would be reserved for study in the college by about 30 per cent of the deans.

7. Commercial and industrial arts subjects were judged to be of minor importance. Most of the industrial arts are not offered on the college level, and the commercial subjects were designated for attention on the high-school level by those recognizing them as having any merit.

8. The variation in the judgments of the deans as to the subjects which are most important in the pre-professional training for medicine is very noticeable in all fields except science. This variation and the information on the recommended level of training suggests that the secondary-school curriculum contains little that is absolutely essential in preparation for training in medicine. However, there was sufficient agreement in the case of several subject fields to conclude that prospective students of medicine should give attention to them in their high school training. The variation in requirements among medical schools makes it necessary for students to become informed of the requirements of the institutions they plan to enter.

The data presented herein have not given a final answer to the question as to what subjects prospective doctors should study when they are

in the secondary school. The variation in the judgment should serve to challenge those persons who possessed strong convictions that every person who planned to enter medicine should enroll in certain courses. The present writers recognize the inadequacies of the summary of judgments, especially the tendency of the traditional program to receive strong approval, and the need for objective measurement. Until such objective data are available, however, it is desirable for guidance workers in secondary schools to be familiar with the deliberations of organizations and groups most concerned with medical training.

SOME SUGGESTED TECHNICS FOR THE TEACHING OF HISTORY

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IN THE main it is a good philosophy to regard all branches of learning as having a particular field of activity and usefulness, and that each branch of learning must be looked upon as the peer of all the others. In short, all branches of learning must stand upon a footing of democratic equality. The study of history is more distinctively the study of humanity than is any other branch of learning. It deals not so much with man as with men. It has to do less with life than with life relationships which form so much of the largest part of the business of living. It does not confine itself to the knowledge of human behavior in a local environment but extends itself to larger institutional relationships.

Teaching Is an Art of Varied Forms. Since it is a commonly accepted fact that all teaching is an art which is varied in form, flexible in its ways of approaching and dealing with human material, to endeavor to confine the procedure of teaching within the limits of any single method is to commit the one unpardonable sin of the pedagogical creed. The conscious preservation of our sense of proportion and the maintenance of a nicely balanced notion of the fundamental principles of good teaching will safeguard all new technics from becoming a fad. Out of actual classroom situations will come these valid procedures which alone can produce adequately mindsets for assimilation and intelligent reactions. Any method or technic that tends to limit or restrain teacher-sense, personality, initiative and originality, is without merit and cannot result in productive pupil experience.

Directed Study Essential to Both Teaching and Learning. A good teaching technic involves a technic of directing study by means of which pupils develop correct study habits. This is the secret of both teaching and learning. Just as subject-matter cannot be separated from method, so in reality can there be no effective learning without directed study. Here then is the first duty of a good teacher, to make a careful analysis of the study habits of her pupils and prescribe corrective and remedial measures for the improvement of these habits for more effective learning.

Teaching Units Must Comprehend Aims and Objectives. The teaching units set forth in a course of study should represent an agreement as to the fundamental principles which must be mastered by the pupils for the realization of the aims and objectives of each unit, and ultimately for the realization of the objectives of the course. Each unit also must represent (1) a general agreement on the best outline of procedure, since each unit includes the major historic concepts and principles to be emphasized; (2) the best selected supplementary offerings and the best schemes for motivation and enrichment. With such a set-up the teacher should find little difficulty in securing pupil interest and pupil control.

The Teacher Must Determine the Best Method. The best method for presenting the offering of each unit for assimilation and reaction must be determined by the individual teacher on the basis of her own experience and on the basis of the intelligence and interest of her group. Whatever method or technic or devise employed by the teacher to bring a real learning experience, there must result a full appreciation of the assignments which take into consideration the larger unit, such as the period, the movement, or the institution. Mastery of the unit can only supply the pupils with tools for the larger task of understanding these periods, movements and institutions, and for the development of the ability to discuss clearly and coherently, both in writing and orally, the unit relationship to the larger unit and to the whole of history.

Work Sheets Facilitate Pupil Learning. The work sheet or study guides in the hands of a wise teacher often facilitate pupil learning and avoid the loss of time which too frequently occurs when the pupil becomes entagled in a vague and involved assignment. When such devices become mere "crutches" to "cover ground" they cease to have merit. The same may be said of contracts or laboratory work. It is my belief that any scheme or devise which becomes self-administrative and incidentally self-motivating, is good and will result in improved learning. Put in other terms, if a child knows what to do, knows how to do it, and is given proper time and guidance in doing it, he will learn what he should learn and will appreciate the effectiveness of his experience.

Visual Aids Should Be Purposeful. The use of visual aids in the teaching of history is of unquestioned merit if such aids are employed to supplement the subject-matter at the time when such subject-matter is under consideration, and are definitely made use of when conducting reviews. When charts, graphs, maps, tables or any other form of supplementary material are used for the sole purpose of adorning a note book, then their value is lost. Such aids must be purposeful as well as meaningful, and should be a means of enriching the experiences of the pupils and should result in establishing a larger approach to an appreciation of the whole of history.

Supervised Study Should Stimulate Pupil Interest and Activity. Supervised study is a much discussed plan of teaching and varies in its execution about as much as does the so-called "socialized recitation." Both may become effective schemes for learning if adapted to the needs and abilities of the pupils. When such plans are intelligently initiated so as to bring into play a freeing of pupil interest and activity, then the teacher will find little

need for autocratic home-work assignments. In fact, under properly controlled class-room conditions pupils will voluntarily apply themselves to supplementary reading at home. This is as it should be, because the very meaning of motivation implies freeing of pupils from forced participation in any given assignment and the development of a state of sustained interest which carries over into the leisure hours of youth. I fully realize how utopian any plan for an ideal set-up for supervised study must appear, but we should strive to accomplish the end over a period of time. One ideal plan is to have from fifteen to twenty copies of each of three or four supplementary books placed at the disposal of the pupils of each room. Then by equipping each room with the most effective visual aids, there can be no reason for non-productive experience in the classroom.

Value of Guidance in the Selection of Books. Another matter which is too frequently overlooked by teachers and one which conditions learning very definitely is that of guidance of pupils in the selection of books to read for the purpose of enriching their experience in each unit. This applies particularly to the offerings of the course of study in its reference lists where such references relate to special fields and works in series. There is a definite basis for the selection of reference books which involves standard of excellence of the book and authority on the subject. Pupils should be taught to make intelligent selections from these large lists of reference because by so doing they develop the power of discrimination, which power is worthy of development in every child. Even though it is a gigantic task for any teacher, it is nevertheless a worthy one and can be performed by annotating the best references in each list. This will attract the pupils to the content of such reference and will lead them into a desire for reading at least part of the references. After the pupil learns the technic of selection of materials for the unit under consideration he should be guided into an appreciation of the best order and method of using the materials indicated.

One might continue indefinitely to present methods and devices which have made valuable contributions to both teaching and learning history, but there must be a limit to these offerings. It suffices to say that progressive teachers will avail themselves of the best literature in the field of methods and will keep abreast with technics which produce results.

A Testing Program Must Be Used to Measure Results. The whole program of learning and teaching would be quite complete with a well-organized course of study, and every teacher would feel amply repaid for her efforts if by some mysterious process it were possible to determine the organic changes which take place in the pupils as a result of this program. If it were possible to measure the changed attitudes and interests, the new ideals and larger appreciations, as well as the broader visions of youth growing out of these rich experiences the problem of the teacher would be quite completely solved. Since this is hardly possible to hope for we must be content with such objective measures, both for each unit and for all units, as will determine for us the effectiveness of our teaching methods and procedures as applied to the mastery of the fundamental facts and principles of history, which in the main must serve as tools for expression. Such measures as will determine to what extent the pupils mastered

the language of history will have to be created. Then there is need for the development of such measuring devices as will reveal in a measure the increased power of synthesis which pupils acquired through their experience with books and in class discussions. To this end it would be entirely within the realm of sound pedagogy to assign certain problems to pupils which require a knowledge of the intelligent use of books, in which event the pupils should be permitted to make use of available materials for the solution of the assigned problem. It is quite as important to know whether pupils can make use of books for the study of problems as it is to know what facts the pupils have mastered.

Comprehensive tests have other merits which need emphasis. Nothing makes a better contribution to teachers and pupils for the purposes of review than an analysis of pupil reactions to well-organized test materials, nothing offers richer opportunity for the determination of strong and weak study habits than test results. In short, a testing program serves as a barometer to both teaching and learning. It aids the teacher in determining the nature and degree of mastery of history facts and principles, which are the tools of expression. And it serves as a key for ascertaining the amount of actual power acquired by the pupil through his vicarious experiences in a course in history.

THE FALL CONFERENCE OF THE SOUTHERN CALIFORNIA JUNIOR COLLEGE ASSOCIATION

DR. JOHN W. HARBESON
Principal of Pasadena Junior College and President of the Southern California Junior College Association

THE annual fall conference of the Southern California Junior College Association was held at the Fullerton Junior College on Saturday, October 15, 1932. This annual meeting, which is always a great event among the junior colleges of the south, was of particular importance in the current year. All of the eighteen junior colleges south of the Tehachapi were represented. It was the largest meeting in the history of the conference.

At the general session, which was held in the beautiful new auditorium of Fullerton Junior College, Dean W. W. Kemp of the School of Education of the University of California, and President Ellis M. Studebaker of La Verne College, were the speakers.

Dean Kemp presented a very illuminating paper on the subject,

Some Problems in Higher Education: How Are They Being Met?

In discussing this subject Dean Kemp reviewed the attempts of some thirty-five states to effect a more rational organization of their institutions of higher education. He pointed to the early tendency of legislatures to parcel out fragments of higher educational activities among rival communities with little regard to the best interest of these activities or of the students. When it was found that legislative generosity had brought an accumulation of conflicts, first conflicts between land-grant college and university, then strife among normal schools, and later between them and the university, there set in a movement to forestall haphazard development and its result-

ing unnecessary duplication. State after state attempted an educational reorganization by some form of administrative consolidation. One form was that of placing all public educational institutions under one State Board, including the lower school system; another was that of a small State Board of Administration for the control of the state's institutions of higher education; still another combined all separate institutions for the education of teachers with supervision of the lower school system. The speaker reported the bitterness of the recent strife in Oregon in which the state, through sheer weariness of conflict, took rather drastic action. He felt that tendencies in reorganization would in the future follow the more rational statement of policies as contained in the recent Carnegie Report on Higher Education in our own State.

Turning to this Report, Dean Kemp said in part: "It is a constructive Report. The outstanding interest in public education of every member of the Commission is well known—in fact, it is hardly possible that a better selection for a task of this character could have been made. However, the Report has been met by a flood of controversial issues. A considerable number of such issues as reported in various educational meetings and in the magazines of the State may really be an indication of the general excellence of the recommendations. The unfortunate thing about these controversial issues is the probability that they will negate the entire Report. If we can only change the general psychology of the situation and approach the Report with the attitude of discovering the vast majority of excellent features as against undesirable features, we shall be able to advance the cause of public education mightily.

"As viewed by citizens not influenced by local prejudices, the Report offers a plan (1) to secure permanently the great advances made by our common school system; and (2) to provide security of organization and administration, as well as to enhance the dignity of all the institutions of higher education—junior colleges, teachers colleges, and University. In its treatment of junior college education particularly, the Report ought to commend itself to every member of this Association."

President Studebaker spoke on the subject,

Recent Changes in the Administration of College Education

Section Meetings

He said in part: "The constantly increasing stream of students in the schools of higher education in America has introduced new problems which have compelled progressive schools to more or less reconstruct their whole educative process with a view to adapting it to the changing needs of the individual and of society.

"The personnel service of Columbia, in which by means of committee guidance, placement examinations, achievement tests, and survey courses the student, especially during the first two years, is led to discover his own bent and interest; the so-called self-education of Harvard, which it attempts to achieve, at least in the upper three years, by means of the General Examination and Tutorial Systems, the Reading Periods, and the House Plan; the honors course of Swarthmore, as well as that of other colleges, in which a comprehensive examination is given at the end of the senior year by an outside examining board; the advisory system under the direction of the Dean at Wabash, where strictly under-graduate liberal education only is offered and where a student must spend four full years in residence in order to be graduated with the Bachelor of Arts degree; the plan at Minnesota of assisting students with low entrance credits by assigning them to courses adapted to their needs; and the organization of the curriculum at Chicago, allowing unprecedented freedom to the student; as well as other plans which might have centered around the special abilities and needs of the individual with a view to guiding him in making his adjustment to a growing and changing society.

"The Chicago Plan merits special mention. It proposes to push downward, even into the first two years of college work, some of the freedom for personal initiative and self-education which is enjoyed by graduate students in most universities. Unlike Harvard University, where professional work begins with the sophomore year, Chicago follows the usual system of continuing secondary education to the end of the second year, or until certain achieved results have been obtained. This work which all freshmen pursue is called the College Division and is concerned with a general

education. Chicago views this part of the pupil's career as a transition period. Though there is no specified time required for a student to complete his general education and pass to one of the upper division groups, it should be observed that the college certificate cannot be acquired in less than a period of three quarters or one academic year.

"The method of instruction is a mixture of lectures, discussion groups, laboratory work, and individual consultations. Syllabuses with bibliographical material and sample examinations are made available for each student. Chicago does not specify a uniform number of class hours for each course, neither is a student required to attend any set number of recitations. There is not even a unit basis of allowing credit. A sufficient record, however, is kept to accommodate students who may wish to transfer to another institution. The ultimate fitness of the candidate to pass to one of the upper division groups or to graduate with a degree is determined by the comprehensive examination which seeks to test not only the student's factual knowledge but especially his ability to acquire, interpret, and use facts."

Section Meetings

Following the general session sectional meetings were held for the following departments of instruction and administration, each of which is organized as an independent unit of the conference: Administration, Art, Biological Science, Business Education, English, Home Economics, Journalism, Language, Library, Mathematics and Engineering, Music, Physical Education, Physical Science, Social Science. The purpose of these sectional meetings is the joint study and discussion of professional problems affecting the respective phases of the junior college curriculum and organization.

Although the conference officially adjourns at the conclusion of the luncheon, a very interesting excursion to the Irvine-Santiago Dam near Irvine Park was conducted under the leadership of Mr. Arthur C. Terrill, Chairman of the Mathematics and Engineering Section.

Increased Enrollment

The following table showing the growth of Southern California junior colleges over a seven-year period appeared on the printed program of the conference.

SOUTHERN CALIFORNIA JUNIOR COLLEGE
ASSOCIATION ENROLLMENT, 1926-1932

Junior Colleges	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*
Antelope Valley	0	0	0	17	30	30	29
Brawley	22	27	23	27	42	60	89
Central	47	61	87	65	117	146	156
Chaffey	290	355	430	438	521	649	800
Citrus	80	105	105	110	130	142	160
Compton	0	150	416	526	540	700	954
Fullerton	218	332	439	516	462	584	751
Glendale	0	126	312	452	587	728	901
Long Beach	0	504	844	1054	1344	1573	1512
Los Angeles	0	0	0	1350	2675	3750	4457
Pasadena	500	630	964	1118	1450	1750	2200
Pomona	82	105	107	147	151	199	224
Riverside	290	305	350	360	420	495	576
San Bernardino	140	290	328	370	458	655	722
Santa Ana	230	335	464	568	627	675	825
Santa Maria	50	66	85	100	118	163	160
Santa Monica	0	0	0	152	355	548	779
Ventura	24	30	41	55	141	325	401
Total	1973	3421	4995	7425	10,168	13,145	15,696

NOTE: Registration of the junior colleges in the Southern California Junior College Association as reported at the fall meetings from 1926 to 1932, inclusive. 1932 registration as of date of September 30, 1932. The September enrollment of 1932 shows an increase of 2551 students, or 19.4 per cent, over September 1931.

ORIGIN AND DEVELOPMENT OF THE PUBLIC HIGH SCHOOL IN CALIFORNIA

JOHN H. NAPIER, JR.
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With this number of THE QUARTERLY *we begin a series of articles on the Origin and Development of the Public High School in California, by Dr. John H. Napier, Jr. The articles are based on a dissertation written by Mr. Napier in candidacy for the degree of Doctor of Philosophy at Stanford University, 1931-32. The titles of future articles that will appear in subsequent numbers of* THE QUARTERLY *are: (1) Private Secondary Education in California as a Contributing Factor to the Development of the Public High School; (2) Rise of the Public High School in California Prior to the Constitutional Convention of 1879; (3) The University of California as a Contributing Factor to the Development of the Public High School; (4) The Period of "Orphanage" of the Public High School in California, 1879-1903; (5) Restoration of the Public High School to the State School System by the Constitutional Amendment of 1902, and Subsequent Development.*—EDITOR'S NOTE.

Introduction

THE public high school in California has attained a place of esteem in the hearts of the people unsurpassed in any other state of our nation. As an evidence of this it may be cited that nowhere in the United States are there to be found such magnificent high school plants as are to be found in California, no other state requires such high professional standards of its teachers, and no other state boasts such a large proportion of its adolescent youth in this, the brightest product of an educational democracy—the public high school. This condition, however, has not always been true. At one time the high school in this State was practically outlawed from public support, being a sort of educational orphan existing only in a few cities and towns. At one period of the State's history regarded with distrust by the masses, it has today become the school of all classes. The story of the development of this institution in California makes interesting reading, for it shows the manner in which a typically American educational invention evolved in a new commonwealth to meet the needs of the people.

The only histories of public education in this State which have been published heretofore have been the two volumes by John Swett, California's great pioneer state school superintendent, entitled *A History of the Public School System of California,* and *Public Education in California,* and a monograph, *Secondary Education in California,* by J. B. McChesney, a pioneer high school principal of the State. Neither of Swett's volumes dealt to any great extent with the history of the California high school, but both are of great value to the student of California educational history, giving as they do a background of state educational history not to be found elsewhere.

The monograph by McChesney, coming as it did from the pen of one of the pioneer high school men of the State, is of value in giving the general outline of the development of public secondary education in California, and is also of value in giving the viewpoint of a participant in the various periods of that development, but Mr. McChesney made no effort to fix definitely facts regarding origins because his monograph was frankly intended for popular reading rather than for a critical audience.

In order to get material for this study it was necessary to draw upon many sources. After the usual official documents had been consulted, it was found that the study of the origin of the high school was incomplete. It was then necessary to draw upon news items found in the files of early newspapers and educational magazines, and to depend upon bits of information gained from early school catalogues, school and academy histories, church histories, county and city histories, and memoirs, reminiscences, and autobiographies of early educational pioneers.

In the history of the public high school in California there are certain very improtant chronological milestones. These are:

1851—The year in which the first high school law was placed on the statute books of California.

1856—The year in which the two first public high schools in the State were organized, the first at San Francisco, August 25, 1856, and the second a week later at Sacramento.

1869—The year in which the University of California was opened for students. This higher department of the State's educational system was to prove a great influence in directing the development of the public high school system.

1879—The year in which a revised State constitution was adopted which "orphaned" the public high school.

1891—The year in which the Union High School and County High School laws were passed which were destined to carry high school advantages to every community in the State.

1902—The year in which the public high school was restored to the State school system by the adoption of a constitutional amendment authorizing the State legislature to levy a state-wide tax for the support of high schools.

1907—The year in which the first public junior college in the State was organized in Fresno.

1909—The year in which the first junior high school in the State was organized in Berkeley.

The evolution of the public high school in California into a distinct type of educational institution may be attributed to three main influences: the first was the California common school out of which the high school gradually evolved; the second was the private academy or secondary school which helped to create a demand for secondary education throughout the State and served as a "stop gap" until such time as the public high school could be fully established; and the third was the influence of the State-controlled University of California which, after its establishment in 1869, tremendously stimulated and guided secondary school development.

The Origin of California's Common School System and Its Development Prior to 1879

As the chief root source of the public high school the origin and development of the California common school system deserve attention.

Schools had been established to some extent in California during the periods of Spanish and Mexican rule, notably in 1844 when Governor Micheltorena issued a decree establishing primary schools at San Diego, Los Angeles, Santa Barbara and other towns, and promising funds for their support. The most successful school established by this decree was one conducted for a time by Guadalupe Medina, an officer of the Mexican army, at Los Angeles. It was said to have been conducted on the Lancastrian plan.[1]

However, because of the poor quality of instruction in most of these schools of early California, as well as the general indifference of the native Californians, these early school efforts did not in any way influence later common school development. The general apathy of the people may be shown by the fact that in the sixty-six years from the founding of Los Angeles to the time of the American Occupation there was a total of only about ten years of school. At times, the teacher who happened to be employed by the Ayuntamiento (or Town Council) would be summoned before it to explain why there had been no school for the past week or so, and the teacher's usual reply was that all the pupils had run away.[2]

It is possible that the backward educational conditions of California would have been improved even if Mexico had continued to govern the country. Another civilization was destined, however, to displace that of Mexico. Stimulated by glowing reports received from New England trading ships, which by the early part of the nineteenth century had begun to carry on a brisk trade with the California coast towns and ranchos, and by equally enthusiastic reports received from path-finding and fur-trapping expeditions, which in the period from 1826-1840 had crossed the Sierra Nevadas and explored the valleys of California, the people of the "young Colossus of the North" had become intensely interested in this far western land.

Points of friction between Mexico and the United States finally brought about the Mexican War of 1846-48, one result of which was the cession of California to the United States.

The period of the American Occupation of California was one of turmoil, and a time of even greater turmoil followed it with the discovery of gold, which occurred just two weeks prior to the final signing of the treaty of peace which transferred this new territory to the United States. This discovery caused one of the greatest migrations of modern times to set in to California. Another unsettling factor which added to the instability of the period was that the new territory struggled for three years with a most chaotic form of government, neither state nor territorial.[3] In the midst of this turmoil, such native Californian schools as existed came to an end. Thus it became necessary for Americans who had settled in this backward frontier to make a new educational beginning in the face of indifference, inadequate equipment, and rude and unsettled social, economic and political conditions.

[1]J. M. Guinn, *Historical and Biographical Record of Southern California* (Chicago, 1902), pp. 12 and 50.
[2]Charles D. Willard, *History of Los Angeles City* (Los Angeles, 1901), p. 272.
[3]Robert Cleland, *California, the American Period* (New York, 1922), *passim.*

Early American Schools in California

Prior to the first California constitutional convention, which was held in Monterey in September, 1849, there were a number of American schools that had been established in California during the period of the Occupation. The first of these was established at Santa Clara in a room of the old mission there, by Mrs. Olive Mann Isbell in the latter part of 1846. This school was conducted by Mrs. Isbell for about two months in a damp, dark and dirty room, fifteen feet square. The school supplies were limited to a few text-books brought by the American families who had settled in the town. One of Mrs. Isbell's pupils related how the teacher had to print the letters of the alphabet on the back of her hand for lack of blackboard, slates or paper.[4]

Shortly after the occupation of Monterey in July, 1846, by an American warship, a young New England Congregational clergyman, then a naval chaplain, was appointed Alcalde[5] of the town. This young man, Reverend Walter Colton, proved to be a very energetic official. In addition to performing his duties as Alcalde, he, together with Dr. Robert Semple, started the first newspaper published in California, in which he urged the cause of education. He also erected a building intended for the joint use of a school and a hall for public meetings. This was constructed by convict labor and paid for out of the proceeds of the sale of town lots and fines on gamblers.[6]

In April, 1847, Mrs. Isbell, who had moved to Monterey, was engaged by a committee of Americans consisting of Colton and others to open a school. This school was even more discouraging to Mrs. Isbell than the one she had conducted at Santa Clara, for in the school at Monterey the pupils understood little or no English and the teacher could speak no Spanish. After carrying on the school for about three months, Mrs. Isbell resigned.[7]

The first American school in San Francisco was a private one opened in April, 1847, by a poorly educated man named Marston. The school was held in a small shanty which stood on the block between Broadway and Pacific, west of Dupont. Here Marston collected some twenty or thirty pupils whom he taught for about a year, his patrons paying for tuition.[8]

On September 24, 1847, the Ayuntamiento of San Francisco, stirred into action by editorials in the *California Star,* the first newspaper in San Francisco, appointed a committee to take measures for the establishment of a public school for the city. On February 21, 1848, at a town meeting a board of trustees for the proposed school was selected, and on March 15 following the board conducted the first public school census held in California. Two days later, Thomas W. Douglas, a graduate of Yale, was appointed teacher, and on the third of April following he opened the first

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[4]Mary M. Bowman, "First American Teacher in California," in *The Land of Sunshine* (Los Angeles), Vol. II, April 1895, p. 87.

[5]Alcalde is a Mexican term for the chief administrative official of a town or city. It corresponds somewhat to the American word Mayor.

[6]Walter Colton, *Three Years in California* (New York, 1850), *passim.*

[7]J. M. Guinn, *Historical and Biographical Record of Monterey and San Benito Counties* (Los Angeles, 1910), Vol. I, p. 299.

[8]Frank Soule, *et als., Annals of San Francisco* (New York, 1855), pp. 186-188.

public school in the State. It was not, however, a free school, tuition fees being charged to pay for the teacher's salary. The salary, however, was guaranteed by the city. Due to the gold excitement this school did not last long, as it was closed after ten weeks, the teacher leaving to join the army of miners.[9]

From this time until the passage of the first city school ordinance in September, 1851, most of the schools established in San Francisco were conducted by missionaries or devoted laymen, who sought to transplant on these shores the institutions of their home lands. A Mr. Christian conducted a small private school in the city for about ten weeks in 1848, and Reverend Albert Williams, a young Presbyterian minister, taught a school for about five months during 1849. The honor of organizing the first free common school in California, however, goes to a young New England school teacher. Upon hearing of Fremont's explorations he, like many others of his time, became intensely interested in California. It was not gold, however, which lured John Pelton to this western country. A true educational missionary, his only purpose in coming to this new, unformed commonwealth was to find a wider field for service.[10]

Soon after his arrival Pelton had a notice published in the *Pacific News* which stated that his purpose was to establish in San Francisco a free public school. It was Pelton's intention that this be a sort of first step—an entering wedge to familiarize the public with the free school idea so that the people would eventually become dissatisfied without a free school system and would demand the adoption of such a system for San Francisco. Late in December, 1849, this school was opened in the Baptist Chapel with three "scholars." A few months later (April 8, 1850), the City Council adopted an ordinance which authorized Pelton to carry on the school as a free school, fixed the hours of instruction and the method of admission into the school, and required the teacher to make monthly reports. The first report was placed on file by the Council May 3, 1850. This school was continued until September, 1851, and during its period of existence more than eleven hundred scholars received instruction.[11]

In addition to Pelton's school there were a number of other schools opened in San Francisco during 1850-51, chiefly under denominational or philanthropic auspices. Reverends Ver Mehr and Mines, Episcopal clergymen, conducted schools in connection with their clerical duties, as did the Catholic priests of the city. The Happy Valley and Spring Valley schools were organized somewhat like Pelton's school during the year of 1850, and like his received some city aid.[12]

Foundations for public schools were being laid in other cities and communities of California by devoted men and women in similar fashion to that which has been described in San Francisco. A school had been opened

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[9] *Op cit.*, pp. 101, 197, 200-203, 678.

[10] *Origin of Free Schools of San Francisco* (San Francisco, 1865), pp. 15-16, 91. Albert Williams, *A Pioneer Pastorate and Times* (San Francisco, 1882), pp. 15-16. John C. Pelton, *Life's Sunbeams and Shadows* (San Francisco, 1893), pp. 199-243.

[11] *Origin of Schools of San Francisco*, pp. 12-14, 38-39, 53.

[12] *Origin of San Francisco Schools*, pp. 39, 106-107. *Seventeenth Annual Report of Superintendent of San Francisco Public Schools for 1869-70*, p. 69. J. L. Ver Mehr, *Checkered Life in the Old and New World* (San Francisco, 1877), pp. 358 and 375.

in Sacramento in August, 1849, by C. H. T. Palmer, but this was soon given up. Reverend J. A. Benton, a Congregational minister, opened a school there on October 18, 1849, with four pupils. This school was taught in a one-story school house, about 14x28 feet, covered at the end with rough clapboards, and the roofs and sides covered with old sails taken from an old river craft. Some "shakes" and "pickets" were nailed over the places not covered by the sails near the ground. There was no floor but the ground, and that was by no means level. After less than two months' teaching, Reverend Benton was forced to close the school. Other schools were held in Sacramento at sporadic intervals for the next three or four years until the new city could organize a public school in 1854.[13]

The first school to be opened in Los Angeles after the American conquest was conducted by Dr. William B. Osborn during the year 1847, under the auspices of the American military commander. In 1850 Hugh Owens conducted a semi-public school which was subsidized in part by the city, and during 1851-1852 Reverend Henry Weeks and wife conducted the same kind of school.[14]

In the interior towns of the State schools were early established through either the zeal of some religious missionary or the philanthropic interest of those who were really desirous of helping their fellows. The stories of many of these early educational and religious pioneers are ones which exemplify a fine spirit of self-sacrifice and service. There was James Woods, a Presbyterian missionary, who went to Stockton in 1850. Regarding his work there, he said:[15]

> My duties in the summer of 1850, after the completion of the church edifice, were to prepare and preach two sermons on the Sabbath—teach school five days in the week—cook for the children and wash the dishes when my wife was sick, which was a good portion of the time that first summer—visit the sick—bury the dead—marry the betrothed, and spend my leisure hours in looking after the interests of matters and things generally.

There was also Sylvester Woodbridge, another Presbyterian missionary, who went to Benicia early in 1849 and for more than a year, in a small building donated for the purpose, preached on the Sabbath, taught school through the week, and lodged at night in a sailor's hammock hung to the rafters.[16]

Among other educational pioneers who without thought of gain conducted schools in the various communities before California organized its public school system should be mentioned the following: Reverend William G. Ganders, Presbyterian, who worked at Stockton in 1850-1851;[17] Reverend S. V. Blakeslee, Congregational, who conducted schools in San José and Marysville in 1850;[18] Reverend Samuel H. Willey, Congrega-

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[13]Winfield J. Davis, *History of Sacramento County* (Chicago, 1890), pp. 25, 98-99.

[14]J. M. Guinn, *Historical and Biographical Record of Coast Counties of California* (Chicago, 1904), p. 237; and Willard, *op. cit.*, p. 273.

[15]James M. Woods, *Recollections of Pioneer Work in California* (San Francisco, 1878), p. 28.

[16]*Ibid.*, p. 36.

[17]George H. Tinkham, *California Men and Events* (Stockton, 1915), p. 177.

[18]William W. Ferrier, *Pioneer Church Beginnings and Educational Movements in California* (Berkeley, Calif., 1929), p. 75; and Peter J. Delay, *History of Yuba and Sutter Counties* (Los Angeles, 1924), p. 172.

tional, who taught in Monterey in 1849[19] and Reverend C. M. Blake, Congregational, who taught in Stockton and Grass Valley in 1850-1851.[20] All of these men carried on their school work as a side line to their religious efforts.

Early Common School Legislation

The legal foundation for the public school system of California was laid by Article IX of the Constitution of California, adopted in 1849. The Constitution provided for the election by the people of a State Superintendent of Public Instruction, and required the State Legislature to provide for a system of common schools. The Legislature was also directed to receive funds for the use of a university and to provide means for the improvement and permanent security of those funds. The foundation for a State School Fund was also laid by the Constitution. It provided the following principal sources for a perpetual school fund:

(1) Proceeds from the sale of all lands that might be granted to the State by the Federal Government for the support of schools;
(2) The estates of people who die without heirs;
(3) Such per cent as might be granted to the State by Congress on the sale of Federal lands within the State;
(4) The proceeds from the sale of the Federal grant of 500,000 acres granted to the State under the Act of Congress approved 1841.

It was further provided that the interest of this fund, together with all the rents of all unsold Federal lands granted to the State for schools, as well as any other such means as the Legislature should provide, were to be inviolably appropriated to the support of the common schools of the State.[21]

The Legislature failed to pass a school law to carry out the provisions of the Constitution at the first session in 1849-1850, but at the second session in 1851 a somewhat meager and imperfectly drawn school law was passed on the last day of the session. This law had two great weaknesses: the first being that it set up the framework of a state school system without providing adequate means for its support; and the second being that this law opened the way for several years of bitter struggle by providing for the distribution of state school aid to sectarian schools. The law is notable, however, in that it provided for the organization of public high schools. This point will be commented upon later. Grading of schools was provided for, as well as the consolidation of towns for school purposes. An interesting requirement regarding state aid for schools was that at least 60 per cent of it was to be expended for teachers' salaries.[22]

This law remained on the statute books for but one year, as a new and revised school law was passed by the Legislature in 1852. The only community which took advantage of the law of 1851 was San Francisco, which organized a city school system by ordinance in September, 1851. Benicia and Santa Barbara reported public schools to the State Superintendent in 1851, the school of the latter city was conducted, however, only in Spanish.

[19]Samuel H. Willey, *Thirty Years in California* (San Francisco, 1879), pp. 29-30.
[20]George H. Tinkham, *History of Stockton* (San Francisco, 1880), p. 281. Hugh B. Thompson, *Directory of Nevada City and Grass Valley* (San Francisco, 1861).
[21]*California Constitution of 1849*, (filed in *California Constitutions*, Bancroft Library), pp. 11-12.
[22]*California Statutes*, second session, 1851, pp. 491-493.

According to the State Superintendent's Report of 1851 common school education in California was at a low ebb, nine counties having reported that no school of any kind, public or private, had been organized in their limits. In practically all other counties, schools were supported through either tuition or voluntary donations.[23]

The school law of 1852 was far more complete than the law of 1851, and for the first time a definite provision was made for state aid to common schools through the levy of a state school tax of five cents on each one hundred dollars of taxable property. In the law of 1851 state aid had been postulated on a mythical and non-existent State School Fund. The law of 1852 also provided that no school should receive any apportionment of public money unless free from all denominational and sectarian bias, control or influence whatever, thus reversing the law of 1851 on this important issue.[24]

The history of the development of the common school system of California after its establishment in 1851 is concerned with three major struggles. These struggles were:

First, to make the schools entirely free;
Second, to eliminate sectarianism from the schools; and
Third, to establish professional standards for teachers.

The Struggle to Make the Common Schools Entirely Free

Although the Legislature of 1852 levied a state tax of five cents on each hundred dollars of assessed property, this support was removed by the Legislature of 1853,[25] and for eleven years practically the only state aid available was the interest from the sale of Federal lands, plus a percentage of the State poll tax which was added in 1854.[26] With the increase of public schools and the increase in enrollment there was, consequently, a great decrease in the amount of state aid per teacher and per child. The amount per teacher had decreased from 955 on January 1, 1854, to $93.91 per teacher on December 31, 1856, and $58.32 on December 31, 1857. The number of teachers had increased in the period from January 1, 1854, to December 31, 1857, from 50 to 486, and the number of census children had increased from 11,242 to 35,722.[27]

Although the amount of state aid extended to the common schools from 1853 to 1864 was niggardly, each Legislature increased the taxing limits for the local units (counties and towns or cities) for the support of schools. The county permissive maximum rate was raised from five cents per hundred dollars of taxable property in 1853 to twenty-five cents per hundred dollars in 1860.[28]

John Swett, California's great pioneer educational statesman, became State Superintendent in 1862. Immediately upon assuming office he set about procuring legislation to accomplish the improvement of the schools. He planned to improve the schools: (1) by increasing the revenue of the

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[23] *First Annual State Superintendent's Report for 1851*, pp. 41-52.
[24] *California Statutes, passed at third session, 1852*, Ch. LIII, pp. 117-126.
[25] *Fifth Annual State Superintendent's Report for 1855*, p. 4.
[26] *Ibid.*
[27] *Seventh Annual State Superintendent's Report for 1857*, p. 4.
[28] *California Statutes, 1853, 1854, 1855, 1857, 1858, 1860.*

public schools both from the State and local units so that they could really be free, and (2) by elevating the teaching profession.[29]

Basing his argument upon the fundamental principles that (1) it is the duty of a republican government, as an act of self-preservation, to provide for the education of every child, and (2) the property of the State should be taxed for that education, Swett urged a state general property tax for the aid of schools. Largely as a result of the agitation carried on by him, the Legislature at the session of 1863-1864 passed a supplementary and amendatory bill which contained the following important financial provisions:

(1) The levying of an annual State school tax of five cents on each $100 of taxable property in the State, to be apportioned in the same manner as the interest of the State School Fund.
(2) A requirement that each county levy a minimum county school tax equal to two dollars for each child between 4 and 18 years of age.
(3) The raising of the maximum rate of county school tax allowed by law from twenty-five cents to thirty cents on each $100 of assessable property.
(4) A requirement that the board of trustees of each school district levy a direct property tax sufficient to maintain a public school five months in each year, whenever the State and county school money should be insufficient for that purpose.

Increases in state and county aid were made the following year, and the same Legislature passed a bill which marked the beginning of the end for "rate" schools in California. This bill required that "rate" bills could not be levied until a free school had been maintained in a district for a certain number of months.[30] "Rate" bills were eventually abolished by the Legislature of 1869-1870 during the administration of Reverend O. P. Fitzgerald, John Swett's successor to the state superintendency.[31]

At the session of the Legislature held in 1874, during the administration of Superintendent Bolander, very important changes were made in the levying and apportioning of state aid to the public schools. It was required that in the place of a straight ad valorem tax, a tax should be raised sufficient to furnish aid to the amount of $7 per school census child, and it was further provided that of the money thus raised, $500 as a minimum should be apportioned to each school or school district, with the balance to be apportioned on a per capita basis according to the number of school census children.[32] Thus by 1874 the State had completely accepted the financial responsibility for a universally free system of common schools.

The Struggle to Eliminate Sectarianism From the Common Schools of California

The second main struggle in establishing California's common school system was to eliminate sectarianism. Although the first school law of 1851 provided for the distribution of the income from the State School Fund (to be established) to schools maintained by religious sects as well as to public schools, this provision was repealed the following year without

[29] *Second Biennial State Superintendent's Report for 1866-67*, pp. 5-6.
[30] *California Statutes, 16th session, 1865-66*, Ch. 342, sections 96-97, pp. 408-409, and section 101, pp. 411-412.
[31] *California Statutes, 18th session, 1869-70*, Ch. DLVI, section 89, p. 848.
[32] *California Statutes, 20th session, 1873-74, Amendatory Acts*, pp. 84-85, 105, and 1114-15.

ever having been carried into effect. The following year Superintendent Marvin recommended that parochial schools be given state aid, and accompanied this recommendation with a list of twelve schools which were at the time being conducted by Catholic priests or teaching orders.[33] In accordance with this recommendation a law was passed in 1853 which permitted sectarian schools to receive a pro rata share of state aid granted to schools.[34]

One result of the extension of state aid to parochial schools was the organization of a parochial school system in San Francisco, which for a time competed with the city school system for public funds and favor. This school system was known as the "Ward Schools" system and was managed and taught entirely by Catholic laymen and teaching orders. At one time there were as many as 1421 pupils in the "Ward Schools," for the education of whom public funds to the amount of $39,690.50 were distributed.[35]

The action of the Legislature of 1852-1853 brought a storm of protest from the friends of public schools throughout the State, and finally, in 1855, the section of the law providing for the distribution of state aid to parochial schools was repealed.[36]

The question of state aid for parochial schools came up again the legislative session of 1861 when Zach Montgomery, a Catholic member, introduced a bill providing:[37]

> That every school numbering thirty pupils, established by the parents or guardians of such pupils, should have the right, on application, to be enrolled as a public school; that the common school branches should be taught five hours a day, with religious instructions and catechism as an extra, at the will of the parents; that the parents or guardians should elect the trustees of such schools, with full powers to control; and that the State fund should be apportioned according to the number of children attending school.

There was danger for a time of the passage of this bill, but under the leadership of John Conness, who had come to America as an Irish immigrant lad a quarter century earlier and who attributed his own career to the common school training he had received, it was defeated.[38] With the defeat of Montgomery's proposel the issue of sectarianism in the common schools of California was settled permanently.

The Establishment of Professional Standards in the Teaching Staff of California's Common School System

The third important thing that had to be done in establishing a strong common school system in California was the establishment of high professional standards for the teaching staff of the State's public schools. In the early days of California's public school system the teachers of each district were examined by each local board of trustees or city board of education, to determine their "fitness to teach." These boards were authorized to grant certificates "of good moral character and fitness to teach a common school" one year.[39]

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[33] *Second Annual State Superintendent's Report for 1852*, p. 28.
[34] *California Statutes, 4th session, 1853*, Ch. CLXVI, sections 7 and 11, pp. 232-233.
[35] James Denman, "Historical Sketch," in *17th Annual Report of Superintendent of San Francisco Schools for 1869-70*, pp. 74-75.
[36] *California Statutes, 1855*, Ch. 185, section 33, p. 237.
[37] Quoted from John Swett, *History of the Public School System of California* (San Francisco, 1876), p. 31.
[38] Swett, *op. cit.*, pp. 31-35.
[39] *Ibid.*, p. 171.

Despite such lax standards many very fine teachers of good education came to the State from the East and the South during the 1850's. It was not until 1860, however, that a more centralized system of issuing teaching certificates was devised. In that year State Superintendent A. J. Moulder secured the passage of a law providing for a state board of examination, appointed by the State Superintendent, with power to grant certificates, valid for two years. This law also provided for county boards of examinations appointed by county superintendents, with power to issue county certificates valid for one year. The city boards of education were still permitted to retain the power of examining teachers, and they were not required to recognize state certificates.[40] At the State Institute held in Sacramento in 1862, the first state examination was held. It was somewhat informal and chiefly oral. Seventeen certificates were granted.[41]

When John Swett became State Superintendent in 1862 he felt that next in importance to securing sufficient financial support for the state public school system was the elevation of teaching. As a teacher, he had been forced to undergo the humiliation of annual oral examinations from trustees, often pompous and conceited in their ignorance. He vowed to "break up and root out the annual-examination farce, and the New England-town-meeting-annual-election humbug."[42] Under his administration a number of important changes were made to further centralize and improve the plan of issuing teachers' certificates: (1) state life diplomas were issued to teachers of at least ten years' experience who were holders of State Educational Diplomas; (2) State Educational Diplomas, valid for six years, were granted, as well as first-, second-, and third-grade state certificates; (3) city boards of examination were established; (4) the State Board of Education was authorized to issue state certificates on county examinations, in which the state series of questions were used; (5) the State Board of Education was authorized to recognize the normal school diplomas of other states; and finally, (6) all boards of examination, whether state, city or county, were required to be composed exclusively of professional teachers who were holders of state diplomas, or first-grade city or county certificates.[43] With these changes the foundation of a professional system of certification was laid, which eventually would make teaching a real profession in California, entitled to take its place alongside medicine, law and the other learned professions.

The Common School as an Instrument of Secondary Education

With a strong common school system established by the later 1860's, it is not to be wondered at that events had shaped themselves for a rapid expansion of the common school into the higher levels of secondary education. As a matter of fact, the common schools of California in the period from 1847-1870 did not restrict their offerings to the lower subjects (later to be known as the elementary school subjects). Thomas Douglas, pioneer schoolmaster of San Francisco, offered his prospective pupils such subjects

[40] *California Statutes, 11th session, 1860,* Ch. 329, sections 11-12, pp. 325-26.
[41] Swett, *op. cit.,* p. 171.
[42] *Op. cit.,* pp. 48, 175-176.
[43] *Op. cit.,* pp. 49, 173-174.

as chemistry, geometry, trigonometry, Latin and Greek, in addition to the regular common school studies.[44] John C. Pelton's school in San Francisco offered among other subjects philosophy and algebra.[45] The early grammar schools of San Francisco, Marysville, Los Angeles and other towns taught many advanced subjects before the organization of high schools in those towns, as will be shown later.

The teaching of advanced subjects was not for a long time considered the special job of a particular institution such as the high school. During all the period prior to 1879 the State recognized the right of the so-called common schools to give advanced subjects, regardless of whether the school was organized as a high school or not. The State Superintendent's Report for 1856 listed a large number of advanced subjects usually regarded as high school subjects which could be offered by the common schools. These included higher mathematics and foreign languages.[46] The school law passed at the legislative session of 1863-64 listed the subjects to be taught in the public or common schools of the State. After listing the usual common school subjects, it was stated that in such schools as the trustees might direct algebra, geometry, drawing, natural philosophy, natural history, astronomy, and the elements of bookkeeping might be taught.[47]

Beginning with 1864-1865, the recommended course of study for the common schools which was printed in each annual report of the State Superintendent began to carry a group of advanced subjects which were allowed to be taught in the advanced grade of the common schools.[48] Encouraged by the school law of 1865-1866, which permitted great latitude to the State Board of Education, as well as to city boards of education in framing courses of study, this advanced grade soon came to cover the latitude of a high school course, minus the foreign languages.[49]

On September 29, 1870, the State Board of Education adopted a set of rules for the grading of the common schools of the State in accordance with a provision of the law of 1865-1866. Schools were classified as first-, second- or third-grade schools, and proceeding under the power to prescribe such studies as it "deemed necessary," the State Board of Education stated that high school studies might be taught in the highest division of first-grade schools if this could be done without injury to the interests of the lower pupils.[50] At its meeting on February 14, 1873, the State Board prescribed a three-year course of study for the advanced grade, which was equivalent to a very good high school course, save for the absence of foreign languages.[51]

In the year 1874-1875 there were approximately 1800 students in the advanced grades of the common schools of the State who were studying, wholly or in part, high school subjects, as against approximately 1600 in regularly organized high schools. There was another influence which during this time was working alongside the common school that hastened this development, and this was the private academy or "college." The development of this institution in California and its work in paving the way for the public high school will be told in the next installment.

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[44] From advertisement of the school, printed in the *California Star* (San Francisco), April 1, 1846.

[45] Pelton, *op. cit.*, p. 224.

[46] *Fifth Annual State Superintendent's Report for 1856*, pp. 13-16.

[47] *California Statutes, 15th session, 1863-64*, Ch. CCIX, section 6, p. 211.

[48] *Second Biennial State Superintendent's Report for 1864-65*, p. 130.

[49] This law permitted any studies to be taught in the common schools which might be "deemed necessary" by the State Board of Education. See *California Statutes, 16th session, 1865-66*, Ch. CCCXLIII, section 55, p. 398.

[50] *California Teacher* (San Francisco), Vol. VIII, January 1871, pp. 203-208, quoted from report of meeting of State Board.

[51] *Sixth Biennial State Superintendent's Report for 1874-75*. Appendix, pp. 9-10.

RESEARCH PROJECTS OF THE SECONDARY SCHOOL LEVEL CARRIED ON IN CALIFORNIA CITIES DURING 1931-1932

Compiled and edited by
FRANK C. TOUTON
Chairman of Committee on Educational Research Activities
Vice-President of the University of Southern California

INTRODUCTION. Following the plan initiated in the CALIFORNIA QUARTERLY OF SECONDARY EDUCATION of October, 1929, the Society's Committee on Research Activities made a request of the research departments of city school systems of California that they report to the committee the several significant research projects of their departments for the past school year. The following is quoted from a letter sent July 1, 1932, to the directors of research departments of California city schools:

You will recall that the October, 1929, October, 1930, and October, 1931 numbers of the CALIFORNIA QUARTERLY OF SECONDARY EDUCATION devoted from forty to forty-five pages to reports of research projects bearing on problems of the junior high school, senior high school, and junior college which were carried on in California during the year preceding. From many sources the research committee has been assured during the past three years that publication of these reports has been of distinct value to administrators and teachers in secondary schools. In order that a similar and complete presentation of this past year's research projects may be offered in the October QUARTERLY of this year, as is suggested by Horace M. Rebok, Editor of the QUARTERLY, it is essential that the Chairman of the Committee on Educational Research Activities receive a report of the work done under your direction.

It will make for uniformity of presentation, if each research department submits a résumé of each secondary school project under the following heads:

1. Its title.
2. The full name of the person who assumed the major responsibility for the project.
3. The department and the school grade in which the project was carried out.
4. The essential nature of the project, including type of data used and procedure carried out.
5. The findings or outcomes.

The projects to be reported may deal with problems of administration, of curriculum, and of methods of instruction in the field of secondary education, grades 7-14, inclusive.

The value of the report as printed in the QUARTERLY will depend upon the extent to which the several research departments collaborate. The space allowed to each department will vary from 600 to 2400 words (from 1 to 4 pages of the QUARTERLY) depending on the extent and nature of the materials submitted to the committee.

Your immediate reply stating that you will collaborate will be deeply appreciated by the committee. It is suggested that reports in their final form be submitted after the pattern of the reports published in the October, 1931, QUARTERLY. Such reports should be in the hands of the Chairman of the Society's Research Committee on or before August 15, 1932.

Anticipating your cordial and thoughtful co-operation, I am,

Faithfully yours,
FRANK C. TOUTON,
*Chairman of Committee on Educational Research Activities.**

*The membership of this committee will be found on the fifth page of this number of THE QUARTERLY.

Research Projects Reported

The reports received by the committee are printed below in essentially the form in which they were submitted. The variety of projects undertaken reveals the alertness of the research departments to the problems in the school systems from which reports have come. The reports afford valuable suggestions as to projects which may be undertaken in other schools, and give brief and profitable résumés of the major secondary school research activities of research departments of California city school systems for the school year 1931-1932.

REPORT OF THE FRESNO PUBLIC SCHOOLS

W. B. MUNSON, *Director of Research*

TITLE: The Teachers' Extra Curricular Load.

PERSON RESPONSIBLE: W. B. Munson.

DEPARTMENT: Senior and Junior High School, Grades 7 to 12.

NATURE OF PROJECT: This was an attempt to get (1) an estimate by teachers of the amount of time spent by them in extra class-room service to the school. (2) Their judgment as to the effect of the extra class program on the quality of the work in the class-room. (3) Their judgment as to whether or not the amount of extra class-room activity should be modified.

Data were collected by means of questionnaires which avoided all possibility of identifying the person who answered. Answers were received from 100 per cent of the faculties of seven high and junior high schools.

FINDINGS:

1. Approximately how many minutes per week (on the average) have you spent on extra curricular duties:
   Range, 0-1799. Median, 250.
2. Approximately how many minutes per week did you spend on extra class-room duties during your heaviest week this semester?
   Range, 0-2450. Median, 560.
3. How many minutes during your lightest week?
   Range, 0-1250. Median, 142.
4. How has your personal extra class-room work this semester affected your regular class-room work?

Favorably	Range (by schools) 4% to 22%	City 15%
Not noticeably	Range (by schools) 29% to 71%	City 53%
Unfavorably	Range (by schools) 7% to 61%	City 28%
Not answered		4%

5. How has the extra class-room program of the school as a whole affected the regular class work of your pupils?

Favorably	Range (by schools) 6% to 26%	City 14%
Not noticeably	Range (by schools) 10% to 53%	City 35%
Unfavorably	Range (by schools) 22% to 85%	City 47%
Not answered		4%

6. In your judgment would it be wise to modify the amount of extra class-room activities?

Increase	Range (by schools) 0% to 11%	City 4%
Decrease	Range (by schools) 24% to 84%	City 50%
No change	Range (by schools) 2% to 28%	City 12%
No answer		34%

REPORT OF THE LONG BEACH CITY SCHOOLS

DORA D. STOKER, *Assistant Director of Research*

PROJECT I.

TITLE: Test in Social Attitudes.

PERSON RESPONSIBLE: Ernest P. Branson, Director of Research.

NATURE OF PROJECT: The test was an experiment along the line of character measurement, "an attempt to measure some of the so-called immeasureables, in the hope that our pupils may share their teachers' seriousness of purpose to develop desirable traits," and it does not claim to be more than an attempt at one phase of character measurement, viz., attitudes. A preliminary edition of the test was taken into three classes for trial and discussion. The revised test was then administered to 4,691 pupils, grades 7-14, selected so as to secure as normal a distribution as possible.

RESULTS: The results were highly interesting. Success in devising a measuring instrument was slight, yet the resulting discussions if continued will have a stimulating effect on attitudes in the student and teaching bodies. The test explores student opinion and reveals surprising degrees both of idealism and the lack of it.

There is a steady rise in median scores from grade to grade until the junior college is reached; here they decline. Girls show superiority in selecting the better responses in every grade, but the worst response is more commonly selected by the boys.

Statistical validation of this test has not been attempted in view of the lack of a criterion test. There are, however, certain indications of validity in the data secured, as well as in the manner of selection and tryout of items. Until further study no statement of reliability is being made.

The survey findings were the subject of a conference held by secondary principals. The following conclusions were reached by the group:

1. The study depicts the need for definite instruction in character education.
2. The survey and the resultant discussions disclose the need in the teaching of history of relating history to present problems, and to ethical conduct.
3. The survey reveals the necessity for evaluating the topics, the methods, and the virtues to be stressed in a program of character education that meets the demands of the machine age, that is derived in accordance with the scientific method, and that conserves the heritage, the ripened experience of the race.

PROJECT II.

TITLE: The Distribution of School Marks, 1930-1931.

PERSON RESPONSIBLE: David Segel.

WHERE CARRIED OUT: Long Beach junior and senior high schools and junior college —all grades.

NATURE OF PROJECT: The distribution of the 1930-1931 school marks in the sixth such report, and presents a comparison of percentage distribution of marks and average marks by segments, schools, and departments.

FINDINGS: Since 1925-1926 there has been a decrease in the number of A's and failures received by pupils and an increase in the number of B's, C's, and D's. During the last two years reported there has been no change. The junior college average mark is the lowest; the junior high school, the highest. In general, the highest marks are received in art, music, and physical education; the lowest in social studies and English.

PROJECT III.

TITLE: Professional Study by the Certificated Staff, 1930-1931.

PERSON RESPONSIBLE: David Segel.

NATURE OF PROJECT: Information from reports submitted by Long Beach teachers, administrators, and supervisors as to registration in extension classes and collegiate institutions during the school year 1930-1931 is presented in tabular form.

FINDINGS: Twenty-nine per cent of the staff registered in classes during the school year, an increase of 2 per cent over the previous year. This number does not include those who took work in evening school or from private instructors. The highest percentage of registration was from the kindergarten-elementary group; the courses most popular were in the fields of education, psychology, art, and English.

PROJECT IV.

TITLE: Vacation Report for 1931.

PERSON RESPONSIBLE: Ernest P. Branson, Director.

NATURE OF PROJECT: As reported for 1930 last year, this report shows the activities engaged in by the teachers of Long Beach during the summer of 1931, and indicates the relative occurrence of the various types of activities for the different groups: elementary, high school, or junior college teachers, and administrators and supervisors.

FINDINGS: Of the entire group, 18 per cent attended school; 4 per cent taught; 11 per cent did playground, library, or other work; 29 per cent traveled; 38 per cent reported no specific activity. Compared with the three previous years, fewer attended school during the summer of 1931 and more engaged in other employment than during the 1930 vacation. The students attending school earned 973 semester credits, mostly in the fields of education, English, history, mathematics, and science. Of these 206 students, 118 were enrolled at the University of Southern California and 28 at the University of California at Berkeley and Los Angeles.

REPORT OF THE LOS ANGELES SECONDARY SCHOOLS

ELIZABETH L. WOODS, *Director Psychology and Educational Research Division*

PROJECT I.

TITLE: Results of Free-Reading Experiments.

PERSON RESPONSIBLE: Mabel C. Hermans, Research Assistant, Psychology and Educational Research Division. See: *Los Angeles Educational Research Bulletin,* Vol. XI, No. 6, February, 1932, pp. 82-88.

NATURE OF THE STUDY: The recently adopted course of study in junior-high school English emphasizes free-reading as an appropriate and excellent method for developing in pupils a background of appreciation for good books. This point of view was not taken without considerable research and study. The first research in the field of free-reading in Los Angeles was made in 1929. This study indicated that a totally different method of teaching literature might be used with far-reaching results. However, it was felt that another study should be made to determine the effect of free-reading on reading comprehension.

FINDINGS: Statistical data summaries show that:

1. As a whole the free-reading program increased the type of reading ability which is tested by the Sangren Woody Test.
2. The free-reading program did not develop the type of reading tested by the Stanford Achievement tests any more than did the program of regular work.
3. In two of the five groups studied the free-reading program proved much more productive than did the regular work. In the other groups, one method counterbalanced the other, an apparent increase on one test being offset by a loss on the other.

Notes and comments of teachers brought out more important values than the statistical data show. Many instances of children, both dull and bright, being stimulated to read, or coming to choose better books and magazines were reported by the teachers trying the "free-reading method." Other comments written in by teachers were:

"In the free-reading groups I was nearer to the pupils. Each child was an individual whom I knew personally. His taste in reading outside of school was my responsibility."

"The program of free-reading gave me a liberal education in juvenile literature. I had no idea of its extent when I began the work."

"The free-reading program made me feel that I must be a 'regular person' if I was to influence the reading tastes of the children."

"Free-reading can build up a sense of values in many kinds of books. This, I think, was the greatest result of the free-reading period."

PROJECT II.

TITLE: Curriculum Adjustments for Slow-Learning Pupils in the Junior High School.

PERSON RESPONSIBLE: M. E. Herriott Assistant Director, Psychology and Educational Research Division. See: *Los Angeles Educational Research Bulletin,* Vol. XI, No. 6, February, 1932, pp. 74-81.

NATURE OF THE STUDY: In Los Angeles the threads of present provisions for slow-learning pupils run well back into the past. The original provision for special-transfer pupils was for those who would profit from vocational or pre-vocational courses. With the extension of the possibility of transferring to junior high school all pupils fourteen years of age or over the junior high schools found themselves with large numbers of such pupils whether they came by special transfer or regular promotion. Extension of compulsory education also aggravated the situation. In consequence, the curriculum provisions for these pupils were not limited to vocational and pre-vocational work. Frequently they were placed in the same classes with pupils of average or above average ability, although many special classes were formed for them.

In view of the fact that there was little or no uniformity in caring for slow-learning pupils in the junior high schools of Los Angeles it seemed desirable to ascertain the existing conditions by means of a survey. The results of the survey are given in the article, with tables showing the numbers of special-transfer and regularly-promoted pupils of special-transfer type in junior high schools; the comparative achievements of the two groups in arithmetic fundamentals, arithmetic reasoning, and reading comprehension; and number and percentage of pupils enrolled in various subject-fields. Homogeneous grouping is only partially realized in Los Angeles junior high schools. Courses of study must be prepared with these conditions in mind.

PROJECT III.

TITLE: Reading Material Evaluated by Means of the Vocabulary Grade Placement Formula.

PERSON RESPONSIBLE: Alfred S. Lewerenz, Assistant Director, Psychology and Educational Research Division. See: *Los Angeles Educational Research Bulletin,* Vol. XI, No. 8, April, 1932, pp. 98-119.

NATURE OF THE STUDY: During the past three years approximately 260 different titles have been evaluated by means of the Vocabulary Grade Placement Formula. Text-books and magazines, for example, have been studied to discover the reading ability necessary to understand their respective contents. The material has been summarized in three ways as follows:

Section I lists both the name of the title and the name of the author. Under the second listing will be found also the number of pages, date of publication, number of evaluations made, vocabulary difficulty grade placement and vocabulary diversity grade placement.

Section II lists the titles alphabetically by grades.

Section III lists the titles alphabetically by subjects. In addition, information as to approximate grade placement is given with each title.

PROJECT IV.

TITLE: Pupils' Reactions to General Science Courses.

PERSON RESPONSIBLE: C. H. Nettels, Assistant Director, Psychology and Educational Research Division. See: *Los Angeles Educational Research Bulletin,* Vol. XI, No. 1, September, 1931, pp. 1-6.

NATURE OF THE STUDY: An attempt was made to measure the success of the teaching of junior-high-school science by noting carefully the pupils' reactions during the progress of teaching. The criterion of success was the type of thinking developed rather than the subject-matter learned. A main purpose was to discover how much and what science should be required of junior-high-school pupils and how the work should be organized.

FINDINGS: Boys are less critical of general science offerings than girls. Fewer science subjects interest boys than girls. Criticism of the course was the most interesting part of the study. One common objection was that the subject as taught was too broad and sketchy. Boys showed special interest in physics and chemistry, while girls were more interested in biological science. Neither sex indicated interest in zoölogy or the weather.

PROJECT V.

TITLE: The Induction of New Teachers into Service in the Los Angeles High Schools.

PERSON RESPONSIBLE: C. H. Nettels, Assistant Director, Psychology and Educational Research Division, who acted as secretary to the local committee of the Committee on Organization of Investigations in Secondary Education of the Department of Secondary School Principals, which prepared the report. See: *Los Angeles Educational Research Bulletin,* Vol. XI, No. 2, October, 1931, pp. 17-32.

NATURE OF THE STUDY: The five-year period from 1925-1930 saw an unprecedented growth in the school population of Los Angeles high schools. The problems involved in the induction of more than two thousand four hundred secondary school teachers were many and varied. The problems considered in the study were: (1) adjustment to the material resources of the school, (2) adjustment to the personnel of the school, and (3) adjustment to the life of the school. In the Bulletin an extensive report is made on each of the problems studied.

PROJECT VI.

TITLE: The Effect of Homogeneous Grouping Upon Certain Personality Traits of Junior and Senior-High-School Pupils.

PERSON RESPONSIBLE: Elizabeth L. Woods, Director, Division of Psychology and Educational Research.

NATURE OF THE STUDY: This investigation was designed primarily to ascertain to what extent junior-high-school pupils in classes sectioned according to ability are aware of the basis of selection and how this knowledge (if they have it) affects their self-esteem and happiness. A schedule of questions was prepared for counselors to ask high-school pupils during a personal interview. The questions were planned to disguise the real nature of the inquiry and some of the counselors had concealed stenographers take down the interview in shorthand. Considerable data of value developed in the answers to some of the questions inserted chiefly to disguise the main purpose of the interview. Data were secured from 277 pupils, 244 of whom were distributed about equally in grades 7, 8, and 9. The remainder (33) were in grades 10, 11, and 12.

FINDINGS:

1. Most of the pupils questioned were grouped according to ability (as ascertained by standardized tests) in both English and Mathematics, but not in home rooms.
2. Few of the pupils grouped according to ability are aware of that fact. Of the total group of 250 cases grouped according to ability in English 10.8 per cent knew about the grouping and 89.2 per cent did not know about it. In mathematics 26.8 per cent were aware that they were grouped according to ability, while 73.2 per cent were not aware of it.
3. Pupils who are aware of the homogeneous grouping say that they like the group they are in, to about the same extent as do those pupils who are not aware of the basis of the grouping.
4. An overwhelming majority of pupils announce a preference for classes where pupils work at about the same rate as they themselves do (211 out of 273 answering this question). A very few pupils (6 out of 273) announced a preference for being with a group slower than themselves, while 42 out of 273 expressed a preference for a group of pupils who work more rapidly than themselves.

PROJECT VII.

TITLE: A Comparison of Achievements in Large Versus Small Classes in Algebra and in History.

PERSON RESPONSIBLE: Elizabeth L. Woods, Director, Division of Psychology and Educational Research.

NATURE OF THE STUDY: Four pairs of classes, two in algebra and two in history, in three junior high schools were measured as to intelligence and given achievment tests in the subject concerned at the beginning and at the close of the first semester, 1931-1932. In each case, the experimental (large) group was approximately twice as large as the control (small) group. Each paired experimental and control group were taught by the same teacher.

FINDINGS:

1. In one of the four pairs of classes studied the experimental group exceeded the control group in achievement by an amount that was statistically significant. In one other pair there was a high degree of probability that the experimental group made a greater achievement than the control group. In the other two pairs the relative achievements of the experimental and control groups were found to be statistically equal. In no instance did the smaller class show superiority over the larger.
2. The charts show that the pupils of the lowest 25 per cent in the small classes do not make any greater progress (relatively) than do pupils in that division of the large classes, and that there is some indication that the reverse is true.
3. Illuminating data provided in notes submitted by the teachers and in comments by observing principles indicate that the large classes are a much greater drain on the teacher's strength and ingenuity.

REPORT OF MODESTO JUNIOR COLLEGE

J. H. BRADLEY, *Superintendent of Schools*

PROJECT I.

TITLE: Modesto Junior College Survey.

PERSON RESPONSIBLE: Dr. J. B. Sears, Stanford University.

WHERE CARRIED OUT: Junior college.

NATURE OF THE PROJECT: Philosophical treatment of the nature of junior college survey with illustrations, discussions and interpretations of Junior College Survey and Modesto and with recommendations for future growth.

PROJECT II.

TITLE: Survey of Building and Room Use.

PERSON RESPONSIBLE FOR PROJECT: J. H. Bradley, Superintendent, City Schools.

DEPARTMENT OR SCHOOL GRADE:

(a) Modesto Junior College.
(b) Modesto High School.

NATURE OF PROJECT AND DATA USED: Graphic pictures of day and weeks, scheduling of subjects and classes showing size, finally showing percentage of use of standard allotment of student stations; also percentage allotment or use of rooms.

Made so Board of Education can see and comprehend all the facts at a glance.

FINDINGS: Most interesting and useful stabilizer and directs building program.

REPORT OF OAKLAND PUBLIC SCHOOLS

J. F. CHING, *Director of the Department of Research and Curriculum*

RESEARCH STUDIES CARRIED ON UNDER THE DIRECTION OF THE DEPARTMENT OF RESEARCH AND CURRICULUM

PROJECT I.

TITLE: Possible Financial Economies Which Might Result from a New Policy in Teacher-employment in the Oakland School System.

PERSONS RESPONSIBLE: Francis F. Smith and Dr. R. E. Rutledge.

NATURE OF STUDY: The study attempted to determine the possible financial economies which would result from the adoption of a policy of employing inexperienced teachers. Consideration was also given to the effect which such a policy would have on matters other than of financial economy, such as efficiency of teaching, the needs and demands on the supervisorial staff, and the general effect on the morale of the teaching staff.

FINDINGS: The following conclusions were reached:

1. During the first two years of the five-year period studied, Oakland paid from $600 to $700 more per teacher newly employed than she would have paid if she had hired only inexperienced teachers.
2. A change in policy after that date, involving the employment of a larger proportion of inexperienced teachers reduced the cost of employing new teachers, over and above the rate which would have been paid inexperinced teachers, $215 per teacher for the year 1930-31.
3. The study did not attempt to evaluate the loss of educational efficiency, if any, through the change in policy.

PROJECT II.

TITLE: Discipline Devices Employed by Administrators in the Secondary Schools of Oakland.

PERSONS RESPONSIBLE: John S. Littig and Dr. R. E. Rutledge.

NATURE OF STUDY: No attempt was made to pass judgment on any of the systems employed by administrators, nor was each system analyzed completely. Every effort was made to present each administrator's point of view and his methods in an endeavor to present a comprehensive picture of the general situation.

FINDINGS: A rather detailed account of discipline devices in use in the junior and senior high schools is presented without comments or evaluation.

PROJECT III.

TITLE: Report on the Cost of Shop Supplies and Equipment Replacement for the Years 1926-27 to 1930-31.

PERSONS RESPONSIBLE: Dr. George F. Haller, Hubert C. Armstrong, and Dr. R. E. Rutledge.

NATURE OF STUDY: The purpose of this study was to secure information regarding the cost of supplies and equipment replacement in the industrial arts and vocational shops of the Oakland Public Schools in an endeavor to set up an allowance or limit to be used in the approval of requisitions for the several shops.

The study attempted to discover the following facts based upon the five-year period:

1. The total gross charges for supplies.
2. Pupil enrollment each semester in terms of pupil-periods.
3. The average cost by years for supplies per semester pupil-period for each junior and senior high school.
4. The unit cost per semester pupil-period for vocational supplies for each school year.
5. The cost per semester pupil-period by schools for the repair and replacement of equipment.
6. The total expense for both supplies and replacement.

FINDINGS:

1. It was shown that Oakland costs were below those of two other large cities in California when the costs in each of the shops were reduced to comparable bases.
2. Recommendations growing out of the survey covered thirteen points concerning which improvement in procedure and reduction of expense could be accomplished in the administration of vocational work.

PROJECT IV.

TITLE: Report on Extra-Teaching Load of Senior High School Teachers in Oakland.

PERSONS RESPONSIBLE: Dr. J. A. Burkman and Dr. R. E. Rutledge.

NATURE OF STUDY: This study was undertaken in order to secure information as objective as possible on the amount of time spent by high school teachers in the performance of their regular and extra-curricular duties with specific reference to the following points:

1. Total time devoted to school studies.
2. Time devoted to making up required reports.
3. Time devoted to professional organizations.
4. Time devoted to work on professional and school committees.
5. Time devoted to work on special activities.

FINDINGS:

1. The typical senior high school teacher in Oakland devotes forty-nine hours per week to school duties; is checked in for duty, according to the time clock, thirty-nine hours and forty-five minutes per week; and devotes nine hours of outside time to school duties.
2. The correlation between time checked in for duty and outside time devoted to school duties is 0.02; that is, negligible.
3. An analysis of the work performed shows that the typical teacher devotes one hour and twenty minutes per week to making special reports; attends one professional meeting every four months; devotes seven minutes per week to such meetings and work connected with them; belongs to three professional and school committees; devotes four hours per week to committee work; and devotes three hours per week to extra-curricular activities.
4. The number of hours per week devoted to school duties ranges from thirty-six to seventy-five, the middle fifty per cent falling between forty-five hours and nine minutes and fifty-three hours and twenty-five minutes.
5. The time checked in for duty, according to the time clock, ranges from thirty-four to fifty hours, the middle fifty per cent falling between thirty-seven hours and forty-three minutes and forty-one hours and five minutes.
6. The time devoted to school duties on the outside ranges from zero to thirty-three hours, the middle fifty per cent falling between five hours and thirty-nine minutes and fourteen hours and fifteen minutes.
7. The time per teacher devoted to making special reports ranges from nineteen minutes to four hours and seven minutes per week.
8. The amount of time devoted to membership on professional and school committees ranges from zero to twenty-two hours per week.
9. The amount of time per teacher per week devoted to extra-curricular work in the senior high schools ranges from twenty minutes to eleven hours and ten minutes.

PROJECT V.

TITLE: Formulation of Library Standards for Oakland Secondary Schools.

PERSONS RESPONSIBLE: B. K. Farnsworth and Dr. R. E. Rutledge.

NATURE OF STUDY: The purpose of this study was to determine to what extent the libraries in the junior and senior high schools of Oakland conform to generally accepted standards for school library work. The study involved the preparation of a checklist of standards and a score card for surveying the school libraries.

On the basis of the score card constructed, library facilities in the junior high schools of Oakland were scored without any attempt to evaluate the quality of books or the library service.

FINDING: The study submits a score card built on a scale of one thousand points with values arbitrarily given and more or less arbitrarily weighted.

Some conclusions were drawn by the authors with respect to improvement of library conditions in several schools, based upon the results of the survey and the use of the score card.

PROJECT VI.

TITLE: Age-Grade Survey.

PERSONS RESPONSIBLE: C. C. Grover and Dr. R. E. Rutledge.

NATURE OF STUDY: As one step in the economy program the study was undertaken to determine the age-grade status of the pupils in the Oakland Public Schools with special reference to:

1. The effectiveness of the policy of classification and promotion of pupils as adopted by the Superintendent's Council.
2. The results of Oakland's policy in terms of pupil placement compared with similar figures from other cities where the school administration is known to be efficient.

All pupils in the school system were included in the study except those in special classes who could not properly be listed.

The study is a very comprehensive analysis of the age-grade status of pupils in the Oakland Public Schools with particular reference to the effectiveness of certain policies established for guidance in pupil placement.

FINDINGS:

1. The great majority of pupils are placed in grades proper to their age and ability; unreasonable acceleration is not found; and serious retardation does not exist.
2. The classification and promotional policy adopted by the Superintendent's Council is functioning effectively. This is indicated by the favorable showing in respect to age-grade placement.
3. In terms of pupil placement, comparison of Oakland's classification policy with other cities gives very favorable results for Oakland.
4. Throughout the study certain grades and schools are noted wherein the policy of pupil placement is not functioning effectively.

PROJECT VII.

TITLE: Adequacy of Salaries Paid to Oakland School Teachers.

PERSONS RESPONSIBLE: The Heller Committee for Research in Social Economics, University of California, and Dr. R. E. Rutledge.

NATURE OF STUDY: The Oakland Public Schools adopted a teachers' salary schedule in 1926 which was designed not only to provide teachers with a living wage, but to provide sufficient income for reasonable savings or annuities and to encourage teachers to increase the value of their services by continued professional and cultural growth.

In view of the fact that commodity prices have decreased materially during the past three years, this investigation set out to determine whether this decrease so affected teachers' expenditures that the maximum salary for teachers could be reduced materially and yet be sufficient to provide for a standard of living in accordance with the purpose of the salary schedule.

The investigation was concerned with two considerations:

1. The determination of typical teacher groups with respect to salary dependents, and other factors affecting the cost of living.
2. The preparation of quantity and cost estimates showing the standard of living that could be maintained by each of these groups on the typical salary received.

FINDINGS: The results can best be summarized by quoting "Section C—Summary" of the study as published by the State Department of Education in Department of Education Bulletin No. 11, June 1, 1932:

"In the preface, the problem of the study was stated to be the determination of the degree of adequacy of present salaries for typical groups of teachers.

"The typical single woman teacher in secondary schools, who has a salary of $235 a month and one total dependent, is able to live at a comfort-and-savings standard suitable to her professional status. She can afford to own a small automobile and set aside each year a depreciation fund for the purchase of a new one, care for an aged mother, make reasonable provision for further professional education, dress suitably, spend $115 for a vacation, make a comfortable allowance for amusements and pocket-money, and still have a surplus to purchase a modest annuity for old age, an endowment policy to protect her dependent

mother, and to provide a small savings fund for serious illness, emergencies, or travel.

"For the typical married man teacher with a wife and two children dependent upon him, the maximum salary of $235 a month is not adequate. With the requirements of five years of university training for entrance into the teaching field, constant expenditure for additional training after appointment, and ten years' experience before receiving the maximum, the highest salary to which he can aspire as a classroom teacher is quite inadequate to support his family in even modest comfort at the standard of living of the professional class to which by education he belongs, or to provide for his old age. His family must economize severely on clothing; their recreation must be limited; he can not afford to hire help for his wife even in the heaviest household tasks, to travel, or to pay for art or music lessons for his children. His annual allotment for medical care is too low to cover serious illness or extensive preventive work for the children. He has no surplus income to save for emergencies or to provide for his own old age. His insurance policy provides scarcely more than one year's income for his family in case of his death. He owns a car, but his budget is too small to provide a regular depreciation fund. The purchase of a new car must be made at the cost of sacrifices in practically every other department of expenditure. To provide reasonable maintenance as a professional man and to raise the standard of a married man teacher supporting a family to a comfort-and-savings level paralleling that of the single woman teacher, his income in Oakland should be $100 a month greater than it is at present.

"The typical single woman teacher receiving the elementary certificate maximum of $2,460 a year, who has one total dependent, can live at the comfort-and-savings level of the woman with $2,820 if she foregoes an automobile. The average woman in this group does not own a car. Those who do, must pay for it at the expense of savings and by sharp economies in their general mode of living. The salary of such a woman is probably near the minimum for meeting her obligations as a teacher."

PROJECT VIII.

TITLE: Factors Conditioning the Need for Study Rooms in Secondary Schools.

PERSON RESPONSIBLE: Beverly M. Nevison.

NATURE OF STUDY: The purpose of this study was to ascertain the amount of study space required for a high school: (1) having a sixty-minute period, "directed study" type of organization, and (2) having a forty-five minute period, traditional type of organization.

The findings were based on an examination of the provisions made for study in twenty high schools as compared with recommendations of the best authorities in the field as to (1) the number actually assigned to study and recommended standards; (2) the number of library sittings provided as compared with recommended and published school building standards; (3) the location of study rooms; (4) the location of libraries.

Two types of organization were found in the schools investigated. The essential difference between the two types, with respect to study room needs, is in the number of study sittings required.

A formula for determining the number of sittings required for each type of organization is given.

FINDINGS: The results of this investigation show that for the traditional or undirected study type of organization, sixteen per cent of the total enrollment are actually assigned to study. For the supervised or directed study type of school, only seven per cent are actually assigned to study.

Study rooms should be located in a central position adjacent to the library.

The library has a direct bearing on the number of study sittings to be provided. The library should be located in a central position close to the study rooms. Five to ten per cent of the total enrollment should be provided for in library sittings.

PROJECT IX.

TITLE: An Analysis of the Teaching Problems of Student Teachers.

PERSON RESPONSIBLE: Robert E. Brownlee.

NATURE OF STUDY AND RESULTS: The study provides an available classified listing of student teacher problems in the field of teaching technique and class management. It should be of exceeding value to those interested in the supervision of student teachers and all beginning teachers.

The study is concerned with an analysis of 9000 problems presented for study by one hundred and sixty-five student teachers and sixty-five supervising teachers in the twelve departments at the University High School of Oakland during the first ten weeks of the spring semester of 1929. It was discovered that approximately one-third of these problems are to be found in the field of teaching technique and class management. Of the 3000 problems classified under this heading, approximately seventy-five per cent are concerned with holding attention, adapting method and procedure to purpose, adapting instruction to individual differences, and mechanics of class management. Secondary source data show these same problems to be still present and troublesome in the early years of teaching.

REPORT OF THE PASADENA CITY SCHOOLS

Summarized by

W. HARDIN HUGHES, *Director of Administrative Investigation and Research*

Studies Bearing on Organization and Administration of the Pasadena Secondary Schools

During the year 1931-32 intensive research studies bearing on the Organization and Administration of the Pasadena Secondary Schools has been carried on under the direction of the following general committee:

Dr. William M. Proctor, Consultant Professor of Education, Stanford University; Mr. George H. Merideth, Assistant Superintendent Pasadena City Schools, and Dr. John W. Harbeson, Principal Pasadena Junior College.

The report on this series of studies will be published locally at an early date and will be made available to those who are interested. The research projects of the investigation have covered the following topics:

I. Personnel Study of Pasadena Junior College.
II. Drawing and Holding Power of Pasadena Junior College.
III. A Study of Placement of Pasadena Junior College Students.
IV. The Set-up and Counseling Program in the Pasadena Secondary Schools.
V. A Study of the Practical and Applied Curricula of the Pasadena Junior College.
VI. A Study of Community Service Rendered by Pasadena Junior College.
VII. A Study of Social-Civic Training in the Pasadena Secondary Schools.
VIII. A Study of the Effectiveness of the Lower Division Work of Pasadena Junior College.
IX. A Study of the Activities of Students After Graduation or Withdrawal from Pasadena Junior College.
X. A Study of Pasadena Junior College Costs.
XI. A Study of the Curricular Offerings of the Pasadena Junior High Schools.
XII. A Study of the Exploratory Function of the Pasadena Junior College.
XIII. A Study of the Preparatory Function of Pasadena Junior High Schools.

Selected Research Studies

PROJECT XIV

TITLE: Comparative Study of Gifted Junior High School Children Who Have Had Activity Training in Special Classes of the Elementary Grades.

PERSON RESPONSIBLE: Miss Mary E. Herschberger, Research Bureau, Pasadena City Schools.

SCOPE OF STUDY: One hundred and twenty pupils of 130 I. Q. or higher were included in this investigation. Sixty of these had graduated from the special ele-

mentary classes for "gifted" children where "activity" methods were emphasized; while the other sixty children of like intelligence had received their training in the regular classes of the elementary schools. At the time of this study, the sixty pairs of "gifted" children were distributed through the junior high school grades.

PROBLEMS AND PROCEDURES: A major portion of the problem was concerned with an attempt to determine the subsequent adjustment of special-class "gifted" pupils in comparison with that of equally gifted children graduated from the regular elementary classes. The data used for this purpose were collected from the cumulative records and from questionnaires filled out by the children as follows: (a) chronological age, (b) Terman Group Intelligence Quotients, (c) Stanford Achievement Test scores, (d) Pressey Reading Test scores, (e) Subject mastery marks by semesters, (f) Trait ratings made by teachers on the Hughes Graphic Rating Scale, (g) Data concerning extra-curricular activities, and (h) other information from the questionnaire.

SELECTED FINDINGS:

1. With respect to cumulative achievement as measured by standardized tests at the time of entrance into junior high school, no significant differences between previously segregated and previously non-segregated students of superior intelligence were revealed. The median Educational Quotient of the former was 132; of the latter, 131.
2. Neither the segregated nor the non-segregated students had, during their elementary school experience, accomplished in proportion to their intellectual abilities. It should be noted in this connection that while the Intelligence Quotients of the segregated group extended from 130 to 155 their Educational Quotients spread from 106 to 155. Practically the same relationship between Intelligence Quotients and Educational Quotients existed in the non-segregated group.
3. In most subjects pursued by these two groups of students in junior high school, the "gifted" who came through the special classes received higher percentages of A's than did the "gifted" who had not come through special classes. The greatest differences in favor of the previously segregated students were found in Music, English, Art, Social Science, Home Economics, and Shop. The subjects in which practically no differences appeared were Foreign Language, and Mathematics. In only one subject, namely, Physical Education, did the non-segregated "gifted" students receive the larger percentage of A's.
4. The group of "gifted" students previously segregated stood slightly but consistently higher in their personality traits as rated by their teachers on the Graphic Rating Scale; Initiative, Co-operation, Leadership, and Industry are the four traits in which the difference was greatest in favor of the segregated students.
5. In eight of the ten extra-curricular activities considered in this study the segregated "gifted" were somewhat superior to the non-segregated "gifted." These eight activities were: Offices held, Athletics, Committees, Dramatics, Acting in Plays, Writing Plays, Art Activities, and Participation in School Publications. Those activities in which the non-segregated "gifted" participated in larger degree were: Clubs and Musical Organizations within the school. It should be noted that in Dramatics and in the Writing of Plays more than twice as large a per cent of the segregated "gifted" as the non-segregated "gifted" were outstandingly active.
6. With respect to participation in activities outside of the school, the segregated "gifted" were significantly superior to the non-segregated "gifted." The activities considered in this study were: Clubs, Offices, Publications, and Musical Organizations.
7. In answer to the question, "In which grades of the elementary school and junior high school have you been happiest?" the segregated "gifted" mentioned the upper elementary grades about twice as frequently as did the non-

segregated "gifted." For the former, these were the grades in which there were both ability-grouping in the extreme form and the "activity" type of learning.

8. No attempt was made in this investigation to compare the economic status and the home environments of the segregated and the non-segregated "gifted." It should also be mentioned that sending "gifted" children to the special classes was a voluntary matter on the part of parents. Perhaps the parents of the two groups were sufficiently different to account for some of the superiorities and inferiorities of their children. Certainly some of the parents of these "gifted" children were interested enough in the educational welfare of their children to seek better learning conditions than were thought to exist in the regular classrooms.

PROJECT XV

TITLE: Solving the Problem of Teachers' Marks.

PERSON RESPONSIBLE: Dr. W. Hardin Hughes.

SCOPE OF STUDY: This study includes an analysis of factors which teachers say they take into account when they assign semester marks in their subjects. All divisions of the Pasadena City Schools are included in the complete study. The following applies only to that portion of the study which was made in the local secondary schools.

PROBLEM AND PROCEDURES: The problem was that of analyzing the factors which tend to render teachers' marks misleading and to arrive at methods for the solution of the problem. The study is a continuation of the investigation previously reported by the author under the title "Analyzing the Ingredients of Teachers' Marks."

SELECTED FINDINGS:

1. The thirty-four factors which teachers of the local secondary schools *say* they take into account when giving semester marks in their subjects are listed below in descending order of importance. The per cent of teachers "giving very much weight" to these varies from 97 per cent for accuracy of work accomplished to 1 per cent for "placement in enriched, average or minimum curriculum group."
2. These factors are: (1) Accuracy of work accomplished, (2) Mastery of subject-matter, (3) Regularity in assigned work, (4) Ability to apply information, (5) Disregarding home assignment, (6) Ability to study independently, (7) Industry and effort, (8) Persistence through difficulties, (9) Extraordinary improvement, (10) Attention to class discussions, (11) Quality of work accomplished, (12) Originality in work, (13) Maximum use of capacities, (14) Initiative in finding material, (15) Making up work voluntarily, (16) Amount of voluntary work, (17) Consuming interest in work, (18) Sustained attention, (19) Quickness in thinking, (20) Regularity in attendance, (21) Indifferent attitude, (22) Co-operative attitude, (23) Fluent recitation in class, (24) General conduct in class, (25) Leadership in group activities, (26) Pride in accomplishment, (27) Confidence in own ability, (28) Consideration, rights of others, (29) Optimistic attitude, (30) Freedom from egotism, (31) Use of slang in class, (32) Antagonizing the instructor, (33) Dislike for subject, (34) Placement in E, A, or M group.
3. The following recommendations are offered for the solution of the problem:
   (a) Put into practice the general principle that in recording and reporting we should keep apart the things that are different. This means that the records for subject-matter achievement should be independent of ratings on personal traits.
   (b) Settle upon the form in which subject-matter achievement is to be recorded. There are certain advantages in the A, B, C, D, E, and F marks generally used in cumulative records and reports. A smaller number of marks may be found desirable if they are properly defined. But, in any case, the symbols used should definitely indicate subject-matter achievement objectively measured.

(c) The report to parents on subject-matter achievement may or may not be in the same terms as those used in the cumulative records. We should keep constantly in mind that the purposes of the student's cumulative record in the principal's office and the reports to parents are, or should be, very different.

(d) Settle upon a list of personal habits and attitudes which are to be developed in pupils and adopt a workable technique for refining the teacher's estimates of these. The lists already prepared contain a number which by consensus of teachers' opinions are important. By further study we should be able to refine the list. The techniques for refining estimates of such qualities, however, should be in line with the best that specialists in this field have devised.

(e) Devise a report form that will convey significant information to the parent. While the types of data which may be reported to the parent should be standardized and uniform throughout the system, the information given concerning any pupil should be in accordance with individual needs. An "increasing confidence in ability to succeed" may be most welcome information in one case, while a "co-operative attitude" may be most welcome information in another. The point being made here is that a certain degree of uniformity as well as diversity is essential in reporting to parents.

(f) We should go one step further. Let us have reports from parents to the school. The general purpose of these should be to develop a better understanding between the home and the school. Co-operation in the handling of the student cannot be accomplished when talking and reporting is taking place in only one direction.

PROJECT XVI

TITLE: A Study of Personnel Practices in the Selection of Teachers.

PERSON RESPONSIBLE: Dr. W. Hardin Hughes.

SCOPE OF STUDY: The study includes the thousands of applicants for teaching positions in the secondary schools of Pasadena during a four-year period.

PROBLEM AND PROCEDURES: The problem was that of comparing successful candidates with candidates in general. Three types of data were used in this study, namely, (a) composite personality ratings of candidates made by members of personnel committee at the time of applicant's interviews, (b) scores made on objective examinations calculated to test the candidate's mental alertness, general and professional information, and ability to express ideas convincingly on selected problems related to school work, and (c) composite graphic ratings made by references.

SELECTED FINDINGS:

1. Very significant differences were revealed between successful candidates and candidates in general on each and every quality of the rating scale used by the personnel committee. These qualities are briefly defined as follows: (a) Grooming as evinced by neatness, cleanliness, appropriateness of dress; (b) Voice as evinced by enunciation, modulation, pleasantness of tone; (c) Sex-character as evinced by masculinity in man and femininity in woman; (d) Refinement as evinced by good breeding, courtesy, poise, culture; (e) Forcefulness of personality as evinced by energy, enthusiasm, decisiveness; and (f) Versatility of mind as evinced by sense of humor, adaptability in conversation.
2. There were no significant differences between successful candidates and candidates in general with respect to composite ratings on a carefully devised scale in the hands of references. The qualities in this scale were: (a) Physical Vitality, (b) Mental Alertness, (c) Personal Attractiveness, (d) Capacity for Team-work, (e) Professional Attitude, and (f) Capacity for Results. Each of these qualities was defined in the scale.
3. Significant differences between successful applicants and applicants in general with respect to composite scores on the objective examination were revealed.

REPORT OF THE SACRAMENTO CITY SCHOOLS

JAMES F. BURSCH, *Director of Department of Research and Student Personnel*

TITLE: A Comparative Study of Knowledge of Certain Social Concepts in H 8 Grade Pupils in Junior High Schools and Elementary Schools.

PERSON RESPONSIBLE: James F. Bursch, Director, Department of Research.

DEPARTMENT: H 8 grade of junior high schools.

NATURE OF PROJECT: Two forms of a social concepts test devised by Dr. Luella C. Pressey of Ohio State University were given to 467 H 8 grade pupils in junior high schools and also to 246 H 8 grade pupils in elementary schools. The form of the test is illustrated by the following question:

What is a tariff which seeks to help home industries?

(a) tariff for revenue only
(b) international tariff
(c) free trade
(d) protective tariff

The groups were compared as to performance on the tests as a whole and as to per cent of errors on each of the 160 items.

FINDINGS: The means and quartiles for the two groups were as follows:

	Form A *For 8th Grade Pupils in:*		*Form B* *For 8th Grade Pupils in:*	
	Sac. Elem. Schools	*Sac. Jr. High Schools*	*Sac. Elem. Schools*	*Sac. Jr. High Schools*
Q_3	60.1	57.5	64.5	60.1
Median	55.1	50.2	57.5	54.2
Q_1	47.4	41.5	49.7	45.8

The apparent superiority of the elementary group appears to be due to superior mastery of the more definitely factual concepts such as "referendum," "appointment," "illegal," "impeach," "abolitionists" and others of similar type.

The junior high school group showed superiority in what may be termed more truly "social" concepts, especially those of current interest such as "depreciation of money," "tariff," "standard of living," "aliens," "politics," "legislature," "inflation" and "revenue."

TITLE: A Study of the Correlation Between Knowledge of Arithmetic Fundamentals, I.Q's. and Subsequent Marks Earned in Bookkeeping I.

PERSON RESPONSIBLE: Elmer W. Plaskett, Instructor in Bookkeeping.

DEPARTMENT: Senior high school—commercial department.

NATURE OF PROJECT: 219 students in Bookkeeping I classes were given the Woody-McCall test of arithmetic fundamentals and the Terman Group Test of Mental Ability from which their I.Q's. were calculated. These data were compared with the marks turned into the registrar's office at the end of the semester.

FINDINGS: Per cent of students with an I. Q. above or below 100 who received certain marks:

Mark	*% of Students With I.Q. of Less Than 100*	*% of Students With I.Q. of 100 or More*
A and B	29%	63%
C	37%	15%
D and F	33%	22%

Per cent of Students with arithmetic score above or below the median score who received certain marks:

Mark	*% of Students Below Median*	*% of Students at Median or Above*
A and B	26%	59%
C	31%	21%
D and E	42%	19%

Correlations by the method of rank differences were calculated for the various factors with the following results:

Correlation between Woody-McCall arithmetic score and bookkeeping grade $r=0.639\pm0.027$.

Correlation between I.Q. and bookkeeping grades $r=0.678\pm0.026$

By examining the first two tables above, it will be noted that the I.Q. was somewhat safer in predicting students of outstanding success in bookkeeping while low arithmetic scores were slightly better indicators of unsatisfactory work.

REPORT OF SACRAMENTO JUNIOR COLLEGE

TITLE: The Relationship Between Expressed Purpose of Junior College Students and Frst Semester Achievement.

PERSON RESPONSIBLE: Henry Teller Tyler.

WHERE CARRIED OUT: Personnel department, high freshmen students of Sacramento Junior College.

NATURE OF STUDY: Purpose: To ascertain, for guidance purposes, whether any significant relationship exists between the expressed purposes of students in coming to junior college and the character of scholastic work they do as measured by honor point index achieved in their first semester of college work.

Type of data: Questionnaires, given to a random sampling of high freshmen students, 431 in all.

Procedure: Completed questionnaires were divided into four groups according to the types of purpose stated by the students, as follows: (1) no purpose; (2) vague, general purpose, "better self," etc.; (3) plan to transfer to upper division institutions; (4) prepare for stated vocation.

FINDINGS:

A. Numbers in each of the groups above named order are: (1) 25; (2) 38; (3) 164; (4) 204.

B. No statistically significant differences were found between groups as to (1) honor point index, (2) number of units taken, (3) per cent of units passed, (4) mental test score, or (5) sex.

C. It was concluded that purpose as expressed on paper does not give a practical aid in predicting first semester achievement, whatever effect the incentive of a strong purpose may have being nullified by the greater difficulty of prescribed courses taken by students in groups 3 and 4. A further inquiry into the problem is to be made during 1932-1933.

REPORT OF THE SAN BERNARDINO SECONDARY SCHOOLS

HOLLIS P. ALLEN, *Director of Research*

PROJECT I.

TITLE: The Organization and Compilation of Objective Measures of Use in Guidance and Subsequent Research Projects.

PERSONS RESPONSIBLE: Gladys Sackett and Hollis P. Allen.

DEPARTMENT: This project is a portion of a larger project which makes available objective data and guidance material in cumulative permanent form for all pupils from kindergarten through senior high school. This includes complete health data, test results and certain social and vocational information. Only that portion of the project which concerns junior and senior high schools is here reported.

NATURE AND TECHNIQUE: During the year the following test results have been made available: For all pupils, I.Q., M.,A., silent reading and fundamentals of arithmetic. For all boys, mechanical ability. For all 7th grade pupils, health knowledge. For all 8th grade pupils, civic attitudes knowledge. With this beginning and other data subsequently to be available the project gives to teachers information so that pupils may be understood better as individuals and given

proper guidance. All test results are in percentiles by grades, based on local norms. Teachers are furnished with columned sheets with appropriate space for listing pertinent data for pupils with whom they come in contact. It is to be noted that this is a program of guidance rather than one of checking classroom products.

FINDINGS: Results of reading, arithmetic, health and civics test surveys will be given below. The Detroit Mechanical Aptitudes Examination for Boys was used to measure this ability. Results indicated San Bernardino averages considerably below the norms as published for the test. The size and complete unselectivity of the San Bernardino group leads one to doubt the validity of the published norms. This does not effect the San Bernardino percentile distribution, however.

The results of these tests are now being used in a minor research of prognosis of boys in Physics. Preliminary findings indicate the following order of value: 1st I.Q., 2nd fundamentals of arithmetic, 3rd reading comprehension, and 4th mechanical ability. The availability of these and other data should stimulate many researches of value to guidance, method and curriculum. The complete availability of uniform basic data concerning pupils is believed to be fundamental to research and guidance.

PROJECT II.

TITLE: Consecutive Elementary-secondary Surveys of Arithmetic Fundamentals and Silent Reading in Order to Ascertain Articulation Between School Units.

PERSONS RESPONSIBLE: Gladys Sackett and Hollis P. Allen.

DEPARTMENT: For both arithmetic fundamentals and silent reading grades 4 through 12 were utilized. All pupils in these grades were tested.

NATURE AND TECHNIQUE: By utilizing the same measuring instrument in grades both sides of a division between school units it is possible to ascertain certain educational effects of that division. With arithmetic fundamentals for grade nine and below the Los Angeles Fundamentals of Arithmetic Test was used and for grades 10 and above the Schorling-Clark-Potter Arithmetic Fundamentals Test. For reading from grades four through twelve the Thorndike-McCall Silent Reading Test was used. Results for each grade on these tests were compared with results in other grades and published norms.

FINDINGS: In reading grades 4, 5, and 6 were well above published norms and showed satisfactory progression, as did grades 10, 11 and 12. In grades 7, 8, and 9, however, there was a definite drop below norms, the lowest relative point being in grades 7 and 8. In fundamentals of arithmetic there appeared to be a similar drop between elementary and junior high school. In reading the senior high school gradually "recovered" the ground lost in the junior high school. The same seems to be true for arithmetic. Apparently undue retardation in the junior high schools is not the cause of the poor showing at this point. It would appear, however, that in emphasising the new subjects and organization the junior high school fails to give regard to the fundamentals of arithmetic and reading which have been gained in the elementary schools. As a result of this survey the administration anticipates certain experimental changes in organization and supervision. There is no reason for believing that the articulation between elementary and junior high schools is less effective in San Bernardino than in other communities. It appears that there is little difficulty encountered in the articulation between junior and senior high schools as concerns these fundamental subjects.

PROJECT III.

TITLE: A Measurement Approach to Certain Aspects of Social Science Curriculum Construction.

PERSONS RESPONSIBLE: Gladys Sackett and Hollis P. Allen.

DEPARTMENT: A health knowledge test was given to all 7th grade pupils and a civic attitudes knowledge test to all 8th grade pupils.

NATURE AND TECHNIQUE: The Health Test of the Public School Achievement Tests series was chosen for health and the Hill Test in Civic Attitudes was chosen

for that field. From a detailed analysis of the test, item by item, certain information is available for evaluation of the health program below grade 7 and for the civic attitude program below grade 8. Each of these subjects, being rather new to the field of social sciences, is in need of objective data to assist in the formulation of curricula. Insofar as the tests have included information or items which should be known and understood by 7th and 8th grade pupils, the detailed analysis of standing in the various items of the tests contributes to the formulation and emphasis to be placed in the health and civic attitudes curriculum.

FINDING: As measured by the test used, San Bernardino children are slightly below norm in health knowledge. Considerable fluctuation between schools is of some concern. Apparently there is little correlation between general social standing of schools and health knowledge.

It appears that the fields of the health test in which items were missed most often are: 1st physiology, 2nd first aid, 3rd care of person. The following fields seemed to be better mastered: nutrition, disease prevention, and knowledge concerning health habits.

As measured by the Hill Test it appears that San Bernardino eighth grade pupils are slightly above average in civic attitudes. There is considerable fluctuation between schools in the per cent of students passing each item.

PROJECT IV.

TITLE: Curriculum Construction in the Social Sciences, English, Languages and Manual Arts.

PERSON RESPONSIBLE: Aubrey A. Douglass, consultant and director.

DEPARTMENT: This project included all junior and senior high school grades in the fields mentioned.

NATURE AND TECHNIQUE: Curriculum reconstruction was carried on under the guidance of committees of teachers directed by Dr. Douglass. As has been noted the research department was called in to furnish various types of information which would be of value to the studies.

FINDINGS: Although the curriculum work is conceived to be a continuous process, the research in this field has resulted in mimeographed bulletins and materials which give definite and vitalized organization, in terms of units and divisions, to the fields studied.

REPORT OF SAN BERNARDINO VALLEY UNION JUNIOR COLLEGE

J. B. GRIFFING, *President*

PROJECT I.

TITLE: College Attendance of California High School Graduates of 1930-1931.

PERSON RESPONSIBLE: Frank B. Lindsay, under direction of Dr. W. M. Proctor of Stanford University.

DEPARTMENT: Research.

NATURE OF PROJECT: By permission of Mr. Walter E. Morgan, Chief of Division of Research and Statistics, State Department of Education, and through the offices of Dr. Aubrey A. Douglass, Department of Education, Claremont Colleges, 351 principals' Reports of High School Graduates were examined to ascertain:

1. The number and per cent of graduates who met entrance requirements effective August, 1931, of the University of California, and the number and per cent who did not;
2. The number and per cent of graduates who entered institutions of higher learning in California; and
3. The area effectively served by these institutions.

FINDINGS:

1. (a) 1930-1931 graduates:

Boys	18,865	48.23%
Girls	20,244	51.77%
Total	39,109	100.00%

(b) 1930-1931 graduates meeting U. C. entrance requirements:

Boys	3,637	9.30%
Girls	4,680	11.97%
Total	8,317	21.27%

(c) 1930-1931 graduates not meeting U. C. entrance requirements:

Boys	15,228	38.93%
Girls	15,564	39.80%
Total	30,792	78.73%

Boys who met U. C. entrance requirements were 19.28 per cent of all boys and 43.73 per cent of all graduates who met U. C. entrance requirements.

Boys who did *not* meet U. C. entrance requirements were 80.72 per cent of all boys and 49.45 per cent of all graduates who did *not* meet U. C. requirements.

Girls who met U. C. entrance requirements were 23.12 per cent of all girls and 56.27 per cent of all graduates who met U. C. entrance requirements.

Girls who did *not* meet U. C. entrance requirements were 76.88 per cent of all girls and 50.55 per cent of all graduates who did *not* meet U. C. entrance requirements.

2. (a) 1930-1931 graduates who entered higher institutions:

Boys	8,334	21.31%	of all graduates (39,109=
Girls	8,022	20.51%	100%).
Total	16,356	41.82%	

(b) 1930-1931 graduates who met U. C. entrance requirements and who entered higher institutions:

Boys	2,994	36.00%	of graduates meeting U. C.
Girls	3,564	42.85%	entrance requirements
Total	6,558	78.85%	(8,317=100%).

(c) 1930-1931 graduates who did *not* meet U. C. entrance requirements and who entered higher institutions:

Boys	5,340	17.34%	of graduates who did *not*
Girls	4,458	14.48%	meet U. C. entrance re-
Total	9,798	31.82%	quirements (30,792).

Boys who met U. C. entrance requirements and who entered higher institutions were 18.30 per cent of all graduates who entereed higher institutions (16,356).

Boys who did *not* meet U. C. requirements and who entered higher institutions were 32.65 per cent of all graduates who entered higher institutions.

Girls who met U. C. entrance requirements and who entered higher institutions were 21.79 per cent of all graduates who entered higher institutions.

Girls who did *not* meet U. C. entrance requirements and who entered higher institutions were 27.26 per cent of all graduates who entered higher institutions.

(d) Of 6,558 graduates who met U. C. entrance requirements and entered higher institutions, there went to:

Universities	2,917	44.48%
Private colleges	537	8.19%
Teachers colleges	803	12.24%
Junior colleges	1,819	27.74%

The remainder entered institutions outside the State or minor institutions not considered in this study.

Berkeley received 1,324 of these entrants, or 20.19 per cent. U. C. L. A. received 1,819 entrants, or 17.05 per cent.

(e) Of 9,798 graduates who did *not* meet U. C. entrance requirements and who entered higher institutions, there went to:

Universities	537	5.48%
Private colleges	374	3.82%
Teachers colleges	1,395	14.24%
Junior colleges	5,917	60.39%

Berkeley received 69 of these entrants, or 0.75 per cent. U. C. L. A. received 204 entrants, or 2.08 per cent.

2. (f) Of 16,356 high school graduates who entered higher institutions, there went to:

Universities	3,454	21.12%
Private colleges	911	5.57%
Teachers colleges	2,198	13.44%
Junior colleges	7,736	47.30%

Berkeley received 1,393 of these entrants, or 8.52 per cent. U. C. L. A. received 1,322 entrants, or 8.08 per cent.

3. Area effectively served by higher institutions—in this report the counties accounting for at least 75 per cent of the entrants to given institutions from the 1930-1931 graduates:

(a) *Berkeley*—Of the 1,393 entrants,

Alameda County contributed	694 or 48.82%
San Francisco County contributed	295 or 21.18%
Los Angeles County contributed	41 or 2.94%
San Joaquin County contributed	32 or 2.30%
Contra Costa contributed	25 or 1.79%
Solano County contributed	22 or 1.58%

(b) *U. C. L. A.*—Of the 1,322 entrants, Los Angeles County contributed 1,219, or 92.21 per cent. (The City of Los Angeles sent 1,015 of these.)

(c) *The Teachers Colleges,* with 250 or more entrants:

(a) San Diego Teachers Colleges received 333, or 95.14 per cent of its 350 entrants from San Diego County.

(b) Fresno Teachers College and Junior College obtained 422, or 82.58 per cent of its 511 entrants from Fresno County.

(c) San Francisco Junior College secured 244, or 79.22 per cent of its 308 entrants from Alameda and San Francisco Counties.

(d) San José Teachers College and Junior College had 422, or 68.51 per cent of its 616 entrants from Santa Clara County. Alameda County sent 46, or 6.82 per cent.

(d) Of the 12 district type junior colleges with enrollment in excess of 500 (excluding extension students) as reported to the State Department of Education for October 16, 1931 (page 48, Bull. No. 3, Part I, Feb. 1932).

Junior College	*Total Entrants Reported*	*Received Number*	*Per cent*	*From County of*
Los Angeles	1,925	1,875	97.41	Los Angeles
Pasadena	699	688	98.43	Los Angeles
Long Beach	416	397	95.43	Los Angeles
Compton	348	344	98.85	Los Angeles
Glendale	283	279	98.59	Los Angeles
Santa Ana	271	246	90.77	Los Angeles and Orange
Fullerton	266	260	97.75	Los Angeles and Orange
Chaffey	265	247	93.31	Los Angeles & San Bernardino

San Bernardino	216	206	95.37	San Bernardino
Sacramento	601	456	75.87	Sacramento, Placer and Yolo
Modesto	316	260	82.28	Stanislaus and San Joaquin
San Mateo	230	198	86.09	San Mateo and San Francisco

PROJECT II.

TITLE: A Study of Extension Offerings in California Junior Colleges.

PERSON RESPONSIBLE: J. B. Griffing.

DEPARTMENT: Administration.

NATURE OF PROJECT: By means of a questionnaire information was obtained from 22 of the public junior colleges in California regarding courses offered to adults.

FINDINGS: A total of 173 classes for adults has been held during the school year 1931-1932 by the 22 junior colleges. A commendable versatility in adapting to community needs was evident from the fact that 75 different subjects were listed. When subjects were classified in 12 groups, the number of classes in each group was as follows: Commerce, 26; Fine Arts, 24; Language, 22; English, 21; Science, 18; Social Science, 17; Mechanics, 9; Physical Education, 9; Mathematics, 7; Home Economics, 6; Public Health, 4; and Miscellaneous, 10.

One disappointing feature proved to be the dominance of subjects of high school grade and a lack of community leadership on the part of the junior colleges in the study and discussion of current problems. Only 7, or 4 per cent of the 173 courses related in any way to adjustment to the present world crisis.

General cultural courses made up 121, or 70 per cent of the offerings, while 52, or 30 per cent were of the nature of occupational training.

PROJECT III.

TITLE: Student Opinion Regarding Relative Values of Junior College Courses.

PERSON RESPONSIBLE: J. B. Griffing.

DEPARTMENT: Administration.

NATURE OF STUDY:

In a study of the junior college curriculum, an effort was made to add to other bases of judgment the opinions of former students regarding courses offered. The survey was limited to students who had completed one or more semesters of work, but who had not proceeded to any other institution higher than the junior college. Replies to questionnaires were received from 96 former students. These had completed work as follows: one semester, 6; two semesters, 34; three semesters, 7; four semesters, 12; four semesters with graduation, 37.

Questions asked included:

1. What subject or subjects among those you studied in college have proved to be of greatest value to you from the standpoint of making a living?

2. What subject or subjects among those you studied in college have given you the most satisfaction and help where your happiness and well-being are considered?

3. What subject or subjects would you like to have studied in the junior college but could not because of conflict, lack of time, or because it was not offered?

4. When you consider every phase of a student's welfare, what kind of college course is of the greatest value to the student who can go no further than the junior college, a special course for business or a trade, or a general cultural education?

FINDINGS:

Favorable mention was made of some college course 415 times. Of courses emphasized as being of special value, 102 were of an occupational nature while 313 should be classed as belonging to a general liberal education.

The subject mentioned with overwhelming frequency was English, which appeared in the list 90 times. Other subjects in order of frequency were: Psychology, 47 times; Languages, 26; Economics, 21; Philosophy and Music, 19 each; Typing, 18; Art, History, and Mathematics, 15 each; Shortland, 14; and Chemistry, 12.

When aid in making a living was considered, the order and frequency were: English, 31; Bookkeeping and Accounting, 14; Typing, 13; Economics, 10; Mathematics, 10; Languages, 9; Psychology, 8; Shorthand, 8.

From the standpoint of the general well-being, the order and frequency were: English, 44; Psychology, 22; Music, 11; Languages, 11; Art, 9; Economics, 7; Philosophy, 7; and History, 7.

Subjects which the student would like to have taken but could not appeared in the following frequency: Psychology, 17; English, 15; Music, 9; Philosophy, 7; History, 7; and Languages, 6.

Preference for type of curriculum was expressed as follows:

Semesters Completed	*General Cultural*	*Business or Trade*	*Both*
Three or more	25	18	13
One or two	8	26	6

REPORT OF SAN DIEGO CITY SCHOOLS

Where names of individuals are not given, the major responsibility was assumed by the Department of Research, in charge of C. R. Tupper, Assistant Superintendent.

1. *Survey of Class Size and Teacher Load in San Diego Secondary Schools for 1931-1932.*

   This study was based upon program cards turned in by each teacher and was reported in tabular and graphic form. Analyses were made by departments and buildings in order to locate small classes and teacher-load variation. Suggestions were incorporated as to suitable standards to be adopted. The study was followed by free discussion by the secondary principals' group and resulted in the establishment of new standards for teacher load and class size.

2. *Survey of Secondary Course of Study Offerings and Course Terminology Used in San Diego City Schools.*

   This study involved an inventory of all courses offered in the different buildings with the titles or other designations used. Suggestions were offered for the establishment of a uniform terminology to be observed in all schools. Discussion of the study by the secondary principals' council resulted in the adoption of such a scheme. A standard course prospectus card was also drawn up whereby a complete catalogue of secondary courses in the city might be maintained. Under this plan new courses or experimental offerings in any building are first inaugurated by filing a standard course prospectus card in the Superintendent's Office for approval.

3. *Collateral Reading Guide for Junior High School.*

   This project was carried out by a joint committee from the English and Library departments under the chairmanship of Ora M. Draper of Roosevelt Junior High, and resulted in the publication of a collateral reading list pamphlet for use in the junior high schools of the city.

4. *Standardized Shop Supplies.*

   Through this project standardized lists of supplies and equipment to be used in the various school shops were developed by committees working under the direction of Elliott F. Landon, Director of Vocational and Continuation Education. As a result of this study the variety of items carried in stock was considerably reduced and requisitioning was greatly facilitated.

5. *Standardized Science Supplies.*

   This project proposes to do for the science laboratories what the standard shop requisitions have done for the technical department. Tentative lists of supplies and equipment based on similar studies made by the state of Ohio have been distributed to all science teachers for criticism and suggestions. The formulation of the local standard list will be completed by the Science Curriculum Council under the chairmanship of Clarence E. Johnson, principal of the La Jolla Junior-Senior High School.

6. *Home Economics Survey of Home Conditions.*

This project involved a survey of home conditions in specific areas of the city for the purpose of better adapting junior high courses of study to actual home needs. This study was carried out jointly by Miss Mildred Henderson, City Supervisor of Home Economics, and by Miss Ruth A. Talboy, Regional State Supervisor of Home Economics.

The study resulted in modification of course of study content for the schools involved and in the organization of special home problem courses for older girls.

7. *Home Management and Child Care Courses.*

This project involved analysis and discussion of possibilities inherent in advanced courses in the Home Economics field, under the leadership indicated in Item 6.

The study resulted in two courses, one in Applied Economics for boys, which deals with the business side of establishing and maintaining a home, and one in Child Care and Training for senior girls, which involves specialized study of the topic, together with field observation in a convenient nursery school.

8. *Revision of Applied Music Course of Study.*

This project, which resulted in the publication of a course of study bulletin, was carried out through a joint committee from the Music Department of the city schools and the Association of Private Music Teachers of the city, under the chairmanship of Alfred E. Smith, City School Music Supervisor.

This course outlines materials and requirements whereby pupils may receive credit toward graduation for music study carried on under private teachers during out-of-school hours. The project represents co-operative working relationships with the community whereby pupils may pursue special interests and receive school recognition for such work well done.

9. *Expenditures for Books in Selected California Cities.*

This project involved a brief questionnaire analysis of amounts of money spent for books and standard allotments for books in the secondary schools of twenty California cities. The median budget allotment per A. D. A. for texts and library books was $1.00, $3.00, $3.25 for elementary, junior, and high schools, respectively.

This study was used as a check against proposed figures set up for the San Diego budget.

10. *Miscellaneous Studies.*

Under the auspices of the Co-ordination and Guidance Council several studies pertaining to phases of the local school organization were carried out by sub-committees of the group during the year.

This council, which consists of twenty-five members representing all phases of school activities, acts as a continuing survey and evaluation body for the city schools. Each year the group selects problems it wishes to investigate and receives reports upon them from the sub-committees assigned to each problem. Among the more important studies completed by these sub-committees last year were the following:

(a) Survey of Opportunities for Gifted Children.
(b) Suggestions for a Counselors' Manual.
(c) Reading Bibliography for Counselors.
(d) Opportunities for the Slow Learning.
(e) Suggestions for a Home Room Manual for the Junior High.
(f) Suggestions for a Handbook for 6th Grades.
(g) Vocational Guidance Opportunities in San Diego Schools.
(h) Problems of Transition between Elementary and Junior High Schools.

REPORT OF SAN FRANCISCO PUBLIC SCHOOLS

ROBERT FLOYD GRAY *Director of Department of Educational Research and Service*
RICHARD I. ABRAHAM, LILLIE LEWIN and CHARLES E. PURVIANCE, *Assistants*

PROJECT I.

TITLE: Class Size San Francisco High School, Fall Term 1931-1932.

PERSONS RESPONSIBLE: Robert F. Gray and Staff.

WHERE CARRIED OUT: San Francisco high schools.

NATURE OF STUDY: The study was based on the high school teachers' programs submitted August 21, 1931. Classes in R. O. T. C., lip-reading and speech correction are not included in the tables, with the exception of the R. O. T. C. bands, which are included as classes in music.

FINDINGS:

TABLE I.
Class Size by Departments for All Schools

Class Size	*Art*	*Commercial*	*English*	*Language*	*Household Arts*	*Industrial Arts*	*Mathematics*	*Mechanical Drawing*	*Music*	*Physical Education*	*Science*	*Social Science*	*Total*
50 and Over	.....	.....	1	.....	.....	.....	.....	.....	8	90	.....	1	100
45-49	.....	6	3	1	.....	.....	.....	.....	5	53	.....	5	73
40-44	.....	72	37	16	4	.....	17	.....	8	82	1	64	301
35-39	7	114	134	58	5	.....	56	.....	8	54	15	103	554
30-34	25	85	150	106	21	.....	86	7	21	46	59	89	695
25-29	48	71	93	88	28	77	59	30	7	29	134	65	729
20-24	47	51	72	71	45	37	26	56	18	16	94	22	555
15-19	12	4	4	9	2	11	1	1	6	1	10	.....	61
10-14	1	.....	.....	3	.....	.....	1	.....	3	.....	2	.....	10
5-9	.....	.....	.....	1	.....	.....	.....	.....	2	.....	.....	.....	3
1-4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	140	403	494	353	105	125	246	94	86	371	315	349	3081
Median	26.0	34.4	32.6	30.2	26.0	25.9	32.1	24.1	31.7	42.4	26.9	35.0	31.3

The table shows the median class-size for each department and for all departments, ranging from 24.1 in Mechanical Drawing to 42.4 in Physical Education, with 31.3 as the median class-size for all classes. Practically, one may say that about one-half of the classes in the high schools have more, and about one-half of the classes have less than 31 pupils.

This tabulation also shows that there are 74 classes with less than 20 pupils and 555 classes having from 20 to 24 pupils.

PROJECT II.

TITLE: The Competitive Examination Plan for Junior High, Continuation, and Senior High School Positions in the San Francisco Public Schools.

PERSONS RESPONSIBLE: Robert F. Gray and Staff.

WHERE CARRIED OUT: San Francisco, California, November, 1931.

NATURE OF STUDY: In April, 1931, the San Francisco Board of Education adopted a plan of teacher selection for secondary schools. This plan consisted of a written examination covering English Usage, The World Today, and School and Classroom Procedure; an evaluation of amount of training and experience; an evaluation of quality of training and experience; and a personal interview.

The several parts of the examination plan had the following value:

1. Written examination ..... 300 points

2. Amount of training and experience ..... 200 points
3. Quality of training and experience ..... 300 points
4. Personal interview ..... 200 points

1000 points

Applicants for junior high, continuation school, and high school positions numbered 1011. Of this group 364 were applicants for junior high positions and 647 were candidates for continuation school and for high school positions.

There were 135 (37 per cent) elementary school teachers from the San Francisco public schools, and 229 (63 per cent) elementary, junior high, and senior high teachers from without the San Francisco public schools as candidates for junior high positions.

For continuation school and for high school positions, there were 236 (36 per cent) elementary and junior high teachers from within the San Francisco public schools, and 411 (64 per cent) junior high and high school teachers from without the San Francisco public schools.

The lists of applicants were arranged according to subject to be taught, so each candidate had only to compete with other candidates in the same subject field.

The written examination was taken by approximately 656 applicants from without the San Francisco public schools. San Francisco teachers were exempted from the examination. The grades made in parts 2, 3, and 4 of the examination by teachers within the department were multiplied by 10/7th in order to place both groups on a 1000-point scale.

FINDINGS:

1. There were 1011 applicants, of whom 364 were candidates for junior high positions, and 647 were candidates for continuation school and for high school positions.

2. For junior high positions, 135, or 37 per cent were from within the Department, and 229, or 63 per cent were from without the Department.

3. For continuation school and high school positions, 236, or 36 per cent were from within the Department, and 411, or 64 per cent were from without the Department.

4. The written examination was taken by 656 applicants from without the Department.

5. Six per cent of the junior high candidates had a degree of M. A.; 25 per cent had 24 semester hours or one year above the A. B. degree; 52 per cent had an A. B. degree; and 17 per cent had less than four years' training.

6. Twenty-three per cent of the continuation school and high school candidates had a degree of M. A.; 50 per cent had 24 semester hours, or one year above the A. B. degree; 15 per cent had the A. B. degree only, and 10 per cent had less than four years' training.

7. Of the applicants for junior high positions, 82 per cent had general secondary or junior high credentials; 17 per cent had special secondary credentials; and 2 per cent had special junior high credentials.

8. Seventy-six per cent of the applicants for the continuation school and high school positions had general secondary credential; 23 per cent had special secondary certificates, and 1 per cent had a general junior high certificate.

9. Of the applicants for junior high positions, 13 per cent were rated "Superior"; 62 per cent were rated "Above Average"; 20 per cent were rated "Average"; and 2 per cent were rated "Below Average."

10. For positions in the continuation school and in the high schools, 19 per cent of the applicants were rated "Superior"; 60 per cent were rated "Above Average"; 21 per cent were rated "Average"; and 0.7 per cent were rated "Below Average."

11. The average grades in the personal interview for junior high candidates were as follows: San Francisco candidates, 114.4; outside of San Francisco candidates, 144.1.

12. The average grades in the personal interview for continuation school and senior high candidates were as follows: San Francisco candidates, 147.3; outside of San Francisco candidates, 147.6.

13. Of 135 San Francisco applicants for positions in the junior high schools, 43, or 31 per cent qualified. Of these 39 were placed.

14. Of 229 applicants outside of the Department, 62, or 27 per cent were qualified. Of these 8 were placed.

15. There were 236 San Francisco applicants for continuation and high school positions. Of this number 66, or 28 per cent qualified. Eighteen have been placed.

16. Seventy-five, or 18 per cent of the 411 applicants from without the Department were qualified.

17. Of the 246 candidates on the qualified list 65, or 22 per cent have been placed.

PROJECT III.

TITLE: Ability and Classification of Pupils Entering Junior High School, January, 1932.

PERSONS RESPONSIBLE: Robert F. Gray and Staff.

WHERE CARRIED OUT: San Francisco junior high schools.

NATURE OF STUDY: The following program was scheduled for pupils leaving the high 6th grade in December, 1931.

1. Terman Test of Mental Aibility—A.....November 9
2. Stanford Reading Test—Y.....November 10
3. Stanford Arithmetic Test—Y.....November 10
4. Cumulative Record Cards received at Department of Research and Service .....November 20
5. Classification Data sent to junior high schools.....December 3

These tests serve a double purpose—to furnish the elementary schools with the achievement records of their pupils and to supply the junior high schools with objective data for purposes of guidance.

FINDINGS:

1. Pupils entering the low 7th grade of San Francisco junior high schools range in chronological age from 10 years to over 18 years. The median chronological age is 12 years 0.8 months. Fifty per cent of the pupils are included between 11 years 7 months and 12 years 9.5 months.

2. Pupils entering the low 7th grade of San Francisco junior high schools range in mental age from 10 years to 17 years 5 months. The median mental age is 12 years 8.1 months. Fifty per cent of the pupils are included between the mental ages of 11 years 11.8 months and 13 years 6.7 months.

3. Abilities covering at least five school grades are found in the low 7th grade of each junior high school.

4. The wide variability in mental age necessitates definite grouping in order that the abilities of the entire group might be met.

PROJECT IV.

TITLE: Class Size San Francisco Junior High Schools, Spring Term, 1931-1932.

PERSONS RESPONSIBLE: Robert F. Gray and Staff.

WHERE CARRIED OUT: San Francisco junior high schools.

NATURE OF STUDY: The data which formed the basis of this study were derived from the teacher programs submitted by the teachers of the junior high schools during the first month of the spring term.

Classes in assembly, counseling, library, clubs and study periods were not considered. No distinction was made between classes meeting two or four times per week. An effort was made to account for each and every class, without regard to the number of meetings per week. The fact that many classes in music and physical education meet but twice per week, and at the same time are among the largest classes in the school, no doubt raises the median to a point somewhat higher than it otherwise would be. In other words, classes meeting

twice per week are given a double weight, and being at the upper end of the scale, influence the median in that direction.

FINDINGS:

Table Showing Class Size by Departments for All Schools

Class size	*English*	*Mathematics*	*Social Science*	*Language*	*General Science*	*Commercial*	*Industrial Arts*	*Household Arts*	*Art*	*Music*	*Physical Education*	*Total*
50 or over	5	.....	.....	2	.....	3	.....	.....	.....	44	64	118
45-49	26	22	27	16	22	3	.....	.....	.....	20	33	169
40-44	117	83	102	22	71	26	.....	.....	.....	54	54	529
35-39	104	61	90	34	63	28	2	3	1	28	43	457
30-34	42	29	40	35	25	14	41	7	16	22	27	298
25-29	23	23	11	34	5	11	67	29	34	11	18	266
20-24	16	9	5	19	4	16	129	74	40	13	19	344
15-19	3	3	1	4	1	4	45	24	13	6	2	106
10-14	1	.....	.....	2	.....	2	14	16	3	3	3	44
5-9	.....	.....	.....	1	.....	.....	1	2	2	1	.....	7
0-4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	337	230	276	169	191	107	299	155	109	202	263	2338
Median	39.0	39.1	39.5	33.5	39.8	36.2	23.5	22.4	24.6	41.6	41.8	36.1

The table shows the median class size for each department and for all departments, ranging from 41.8 for Physical Education to 22.4 for Household Arts. Practically, one may say that one-half of the classes in the junior high schools have more and one-half have less than 36 pupils.

PROJECT V.

TITLE: Summary of Test Program Inquiry.

PERSONS RESPONSIBLE: Robert F. Gray and Staff.

WHERE CARRIED OUT: San Francisco public schools.

NATURE OF STUDY: The study was made to evaluate the testing program of the San Francisco public schools. Inasmuch as the teachers and principals had created the original test program, inquiry blanks were mailed to them for the purpose of securing opinions and recommendations relative to desirable changes or modifications. Only the part of the survey dealing with the secondary schools is included here.

FINDINGS: Responses of junior high school principals.

1. Have the test results which come to you from elementary and junior high schools been of value to your school?

Yes, 9; No, 1.

2. If reading and arithmetic tests only were given, would your present practice be affected?

Yes, 8; No, 2.

3. Plan preferred:

(a) Present program, which provides all pupils entering junior high schools with mental reading and arithmetic tests..... 9

(b) Emergency program, which provides all pupils entering junior high school with reading and arithmetic tests and problem cases with mental tests..... 1

(c) Elimination of all tests..... 0

4. Please state ways in which tests have been of value.

(a) Classification.

(b) Sub-grading of basic subjects.

(c) Adjustment of work to individuals.

(d) Aid in understanding behavior problems.
(e) Supplement to teacher's judgment.

5. Comments:

(a) "There should be an enlargement of the program rather than any curtailment of it."
(b) "We feel that the present program should be continued in its entirety."
(c) "Present plan very satisfactory to us."
(d) "Without it, we would be at an entire loss as to the division of classes."
(e) "Present program, I consider well-nigh indispensable. We would like even more information regarding the citizenship attitudes, moral standing, special aptitudes and talents."
(f) "Our first and best information for classification."

Responses of Senior High School Principals

1. Have the test results which come to you from the elementary schools been of value to your school?

Yes, 5; No, 2.

2. Would an elimination of the testing program interfere with present procedures and practices in your school?

Yes, 5; No, 2.

3. Please state ways in which test results have been of value.
   (a) Classification of pupils.
   (b) Evaluating marks obtained.
   (c) Meeting needs of pupils of varying abilities.
   (d) Arranging pupils' programs.
   (e) Aid in counseling.
4. Comments:
   (a) "I scarely see how it could be modified to any considerable extent without materially lessening its usefulness."
   (b) "In segregating groups of pupils, they are invaluable. We want more tests—not less."

REPORT OF SANTA MONICA CITY SCHOOLS

J. HAROLD WILLIAMS, *Director of Research*

PROJECT I.

TITLE: High School Marks.

PERSONS RESPONSIBLE: J. Harold Williams and Staff.

WHERE CARRIED OUT: Junior and senior high schools of Santa Monica.

NATURE OF PROJECT: Numerical, percentage, and graphic distribution of end-term marks for all pupils in junior and senior high schools, with cumulative and comparative data for several years. (Mimeographed, 15 pages.)

FINDINGS: For a total of 6,800 marks for the spring semester ending June, 1931, the percentages of marks are as follows:

Mark	*Junior High School*	*Senior High School*
A	14.0	12.9
B	36.1	32.9
C	34.7	32.3
D	12.1	16.1
E	2.8	5.5
Inc.	0.3	0.3

These percentages correspond closely with the general trend of the three schools for several years, although no standard marking curve has been adopted, and teachers have been free to assign the marks as they wish. Each department and school tends to develop a characteristic curve. Satisfactory standards for comparison with other schools were not available. Art and Music lead in the largest percentages of A's, while English and vocational subjects have the lowest percentages of A's. In general, teachers in the junior high schools have become

more liberal in marking, while the teachers in the senior high school have become more strict.

PROJECT II.

TITLE: Promotion and Non-promotion.

PERSONS RESPONSIBLE: J. Harold Williams and Staff.

WHERE CARRIED OUT: Elementary and secondary schools of Santa Monica.

NATURE OF PROJECT: The study covers both elementary and secondary schools, including, for the current term, 268 non-promotions in the two junior high schools and 376 in the senior high school. Data shown in numerical, percentage, and graphic form, with discussion and cumulative data for several years. (Mimeographed, 21 pages.)

FINDINGS: The percentages of non-promotions, in subjects, for the two junior high schools are 2.6 and 3.2, respectively; for the senior high school, 5.5 per cent. The corresponding percentage of pupil non-promotion in the elementary schools is 5.1. In the senior high school the percentages, by subjects, are: Mathematics, 10.7; Science, 7.2; Vocational Subjects, 7.1; Social Sciences, 6.4; English, 6.3; Languages, 5.6; Physical Education, 1.3; Fine Arts, 1.1. The reasons for failure, as given by the teachers, include, in order of frequency, lack of preparation, lack of interest, absence, slowness, low mentality, poor foundation, inadaptability to work, poor physical condition, laziness, interference of outside work, and poor reading ability. A similar list of attributed causes is reported for the junior high schools. Intelligence tests of non-promoted pupils reveal all degrees of mental ability, the I. Q. range being 60 to 149, with a median of approximately 100, somewhat lower than the median for the whole senior high school in which the comparison is made. Only three pupils of I. Q. 130 or higher are included among the 359 non-promotions in senior high school. For the junior high schools the median I. Q. of non-promoted pupils is also approximately 100.

PROJECT III.

TITLE: Enrollment by School Months.

PERSONS RESPONSIBLE: J. Harold Williams and Staff.

WHERE CARRIED OUT: Elementary and secondary schools of Santa Monica.

NATURE OF PROJECT: A study of seasonal fluctuations in school enrollment for several years. Numerical, percentage, and graphic representations. (Mimeographed, 7 pages.)

FINDINGS: There has been a steady increase in school enrollment in Santa Monica during the past seven years. The seasonal fluctuations appear to be fairly constant. Beginning each year in September, the trend is level until January, when there is a marked increase, continuing until April. At that time there occurs a steady decline, which continues until the end of the school year. The tenth month invariably shows a lower enrollment than the first. The average decrease for the year is 1.0 per cent. The losses are chiefly in the elementary schools, which are not offset by slight increases in junior and senior high schools. Some schools show more marked seasonable changes than do others. The differences appear to be related to the social status of the district in which the school is located. In general, the community of average status decreases; the high-class residential community remains constant, and the foreign community increases in enrollment.

PROJECT IV.

TITLE: Cumulative Report of Research Work, 1924-1932.

PERSONS RESPONSIBLE: J. Harold Williams and Staff.

WHERE CARRIED OUT: Santa Monica city schools.

NATURE OF PROJECT: Historical and descriptive summary of research work in the Santa Monica city schools, from its inception in 1924; with annotated list of reports issued by the department. (Mimeographed, 23 pages.)

FINDINGS: The research staff at the close of the last school year included a part-time director, one assistant director, who also supervises special classes, and two staff counselors. In addition there is a co-operative staff of special class teachers,

research assistants, and school counselors. There has also been a part-time assistant director for curriculum study. The activities described include: (1) measurement; (2) counseling; (3) clinical work; (4) classification of pupils; (5) organization and supervision of special classes; (6) curriculum research; (7) study of special problems; (8) preparation of records and reports. There have been issued 132 reports, most of which have been mimeographed for use in the schools and for exchange with other research departments. Several cumulative studies are summarized and presented in graphic form. The report was prepared in anticipation of drastic curtailment of research activities for the coming year.

REPORT OF VENTURA CITY SCHOOLS

DUNCAN E. CLARK, *Director of Research*

TITLE: Homogeneity in Grades 7 to 14.

PERSON RESPONSIBLE: Duncan E. Clark.

WHERE CARRIED OUT: Junior high school (grades 7-10), and junior college (grades 11-14) of Ventura schools.

NATURE OF PROJECT: This study was to discover to what extent inter- and intra-grade homogeneity exists, as measured in terms of maturity, and whether beginning with the period of adolescence and passing up to adulthood, the four-year junior high school and the four-year junior college, as constituted in Ventura, form easy and convenient steps in administrative controls.

FINDINGS: The study appears to warrant the following observations on the degree of homogeneity in Ventura schools:

1. From the 6th to the 14th grade the divergence from homogeneity between successive grades decreases with almost uniform regularity.

2. The greatest divergence, and hence the least homogeneity, falls between grades six and seven.

3. The least divergence, and hence the greatest homogeneity, falls between grades twelve and thirteen.

4. After the 8th grade the greatest difference lies between grades ten and eleven, although this difference is not significantly greater than that between grades nine and ten.

5. The grade increments run rather consistently through the grades, except between grades twelve and thirteen, where certain decrements occur. The boys and girls in the 12th grade are a little taller, and the girls slightly heavier, than are the boys and girls, respectively, in the 13th grade.

6. For pracical purposes our four-year junior high school and four-year junior college are not four-year units at all. The difference between the 11th grade and 7th grade in chronological age is only two years and eleven months. and in mental age is two years and five months. The difference in the junior college between the 14th grade and the 11th grade is not four years, but two years eleven months in chronological age and two years nine months in mental age. The difference in heights and weights between successive grades becomes progressively less, and, as has been pointed out above, in three instances becomes negative.

The apparent general conclusion may be drawn that, as pupils progress through adolescence, the successive grade differences lose their steep ascent and smooth gradually into an ever-leveling plateau, and that, insofar as chronological age, mental age, height and weight are measures of maturity entering vitally into the problem of student body homogeneity, after about the 9th grade the division of administrative controls may well be made wherever economy and convenience dictate. In the Ventura situation what little difference in divergence between successive grades beyond the 9th does exist seems to indicate that the line of demarcation should come as it does at the completion of the 10th grade. At any rate the four-year groups of the junior college are so nearly homogeneous as measured by these four factors in maturity that no insuperable difficulties should arise in administering a unified program applicable to this "four-year span" of late adolescence.

Educational News and Comment

FOUNDER OF KINDERGARTEN TRAINING SCHOOL

Professor Fletch Harper Swift of the School of Education, University of California at Berkeley, announces the receipt of contributions from the national kindergarten sorority, Delta Phi Upsilon, and from the Southern Section of the California Kindergarten Primary Association, to be used in correcting the error in the date of birth on the monument on the grave of Emma Marwedel, in the Mountain View Cemetery, Oakland, California. A bronze tablet will also be added to the monument, giving the names of Miss Marwedel's parents, her birthplace and certain other heretofore unknown facts presented by Professor Swift in his recently published monograph.

Miss Marwedel is best known as the founder of the first kindergarten training school on the Pacific Coast and as the teacher of Kate Douglas Wiggin.

COURSES IN LABOR SUGGESTED*

A book that contains much information of value concerning labor matters written in such a manner as to be readily understood by pupils in high schools and junior colleges, where the authors suggest the possibility of introducing courses in labor.

The text is divided into five major divisions, with the titles, "The emergence of the modern worker in the United States," "The worker in a market society," "The employer's relationship to the worker," "The organization of workers for collective action," and "Public aspects of the labor problem." Each of these sections is further divided into a number of chapter headings. The book contains much pertinent information which can be used either in a content course in labor problems or in conjunction with courses in economics, sociology, and business organization.

It is recommended that teachers interested in economic education read this book.

**The Modern Worker*, by Mildred J. Wiese and Ruth Reticker, The Macmillan Company; 610 pp.

NO DEPRESSION IN AGRICULTURAL EDUCATION

The farm boys of California are sticking to the soil. The good earth challenges their interest and energy, even in this period of agricultural depression. Here are some of the outstanding facts that are related in a recent report of the Bureau of Agricultural Education:

During the year 1931-32 vocational agricultural education in California expanded as much as it had in any previous year in spite of the chaotic condition of agriculture. Eight new agricultural departments were started in rural high schools in the following locations: Centerville, Clovis, Hamilton City, Hughson, San Bernardino, Santa Maria, Santa Ynez, Ventura.

There was an increase of 461 agricultural students over the previous year. Thirty-two part-time classes were conducted for the out-of-school farm boys, and sixty-seven evening school classes were conducted for adult farmers. One of the most interesting items of all was the fact that out of 1317 students who left the agricultural departments the previous year, 75 per cent of them went back on the farms as partners, renters, managers or laborers. Of the remaining number, 6.7 per cent went on to agricultural colleges, and 18.68 per cent went into other occupations.

There was a total of 115 sectional agricultural teachers' meetings held throughout the State, 12 regional meetings, and one annual meeting with all the agricultural teachers present.

Among the most outstanding accomplishments of the year was the centralization of the Bureau of Agricultural Education work at the California Polytechnic School, San Luis Obispo, California. The summer session for agricultural teachers was held at this institution.

Twenty-five teachers were trained on the apprenticeship basis by the Bureau of Agricultural Education and twenty-three of them were placed in positions throughout the State.

The students' project reports for the year showed a total labor income of $196,434.93. The most important projects were hogs, with 4591 animals; poultry, with 71,660 birds, and sheep, with 3446 head.

At the Junior Livestock and Baby Beef Show held at South San Francisco, the Future Farmers sold:

70 head beef cattle, weighing 65,020 lbs, for	$5,668.98
94 head lambs, weighing 9480 lbs., for	1,289.43
242 head hogs, weighing 47,177 lbs, for	2,874.94
Total number of animals sold	406
Total money received	$9,833.35

In addition to the above money, the Future Farmers received $1,345.50 in premiums.

Bert Jones, California Polytechnic School, San Luis Obispo, received 31c per pound for his champion beef animal; Peter Motta, Woodland High School, Woodland, received $4 per pound for his grand champion lamb; Earl Fisher, Modesto High School, Modesto, received 55c per pound for his grand champion hog; and Earl Fisher of Modesto High School, Modesto, received 17c per pound for his grand champion pen of hogs.

MODESTO JUNIOR COLLEGE SURVEY*

This survey report, submitted to the Modesto Board of Education in March, 1932, deals directly with the situation at Modesto Junior College, and as such is of prinicpal interest to the citizens of that community. However, the author has set forth in this report many facts and principles which bear upon junior college development generally. In dealing with the problem at Modesto he has not only summarized and applied to concrete situations current modern junior college theory, but he has not hesitated to extend such theory or to enunciate original principles where such are warranted. For these reasons the Modesto Junior College survey report is in reality a treatise on the junior college, and as such will be of interest to educators elsewhere, and especially to professional workers in the junior college field.

In his first chapter, on aims, organization and general policies, Dr. Sears states the principle that the junior college should be a unit in the local educational organization; that its service must be dictated by the nature, aspirations and capacities of the people (young and old) of the community served; and that organization, staff and equipment should be built up or selected in order to achieve these specific ends.

Throughout the report the author emphasizes the principle of unity in the local educational set-up. This principle of unity is to be applied in policy formation and must operate in curriculum construction, in administration, in supervision, in guidance, in student activities, in research, and in teaching equipment. This program cannot be effective, the author points out, unless the administration operates by means of leadership rather than by reliance upon delegated authority. Stress is thus laid upon the necessity of teacher-co-operation, even in certain provinces long considered as sacred to the administrative mind.

Space is lacking for a review of the entire report. Chapters are given on Organization and Administration; The Faculty; The Student Body; The Curriculum; Extra-Curricular Activities; Supervision; Guidance and Research; Student Load and Student Progress; Library and Teaching Equipment; and on Finance and Business Management.

The chapter on The Curriculum and the division on Research and Guidance will be of special interest to people professionally concerned with the junior college.

In his chapter on The Curriculum, Dr. Sears stresses the need for adaptation of the curriculum, both in the making and in its application in the classroom, to individual student needs and purposes. The junior college teacher is frankly asked to teach students, rather than merely subjects.

A general trend toward extreme decentralization in the curriculum, it is pointed out, may lead to a chaos of mere courses without definiteness of aim or purpose, just as a hard-and-fast and narrow combination of courses may be largely sterile of educational results. The

*Sears, Jesse B., *Modesto Junior College Survey*, 260 pp., published by the Modesto Board of Education.

remedy for either of these conditions or trends is constant vigilance on the part of the departmental staffs to see that their curricula and courses bear directly upon the educational needs of their students.

In this connection the author is not content merely to generalize. In divisions entitled, respectively, The Problem of Departments and Curricula, Development of Curricula, Co-ordination of High School and Junior College Curricula, and Curriculum Expansion, he gives concrete and definite illustrations of how the principles he enunciates work in practice.

The function of research in the junior college is as broad as the college itself. The author suggests for the Modesto Junior College a division of research and guidance which will operate within the junior college, and co-operate, both collaterally and through the general research and guidance office of the district, with research and guidance divisions in the high school and elementary school departments.

Adequate library, laboratory and museum equipment, says the author, are necessities to both students and faculty, and should be acquired in view of the specific purposes they are to serve. Thus the principle of adaptation to specific educational purposes, and to individual student needs, is applied in the selection of equipment and supplies.

Anyone who has a special interest in the junior college field will want to read the entire report.

ELMER H. STAFFELBACH,
Director of Research, California Teachers Association.

COMPARATIVE COST OF SECONDARY EDUCATION IN CALIFORNIA FOR SCHOOL YEARS 1930-31 AND 1931-32

The Division of Research and Statistics of the State Department of Education has tabulated the comparative unit cost per pupil in average daily attendance for each division of the State school system for the school years 1930-31 and 1931-32, from which is taken the following data concerning the high schools and junior colleges of the State. The obvious fact to be noted is that, aside from capital outlay, the high school unit cost in 1931-32 was reduced by $10.98 and the junior college unit cost was lowered $21.14. The segregation of cost is shown in the table below.

Budget Classification	*High School Districts*		*Junior College Districts*	
	1930-31	1931-32	1930-31	1931-32
I. School district current expenditures per pupil in average daily attendance:				
a. General control	$ 6.76	$ 5.60	$ 11.75	$ 6.93
b. Teachers' salaries	128.79	123.57	157.71	136.46
c. Instructional expenditures[1]	15.37	13.94	24.09	19.24
d. Operation expenditures[2]	29.27	26.62	43.46	44.87
e. Transportation expenditures[3]	.....	4.93	.....	.72
f. Other auxiliary expenditures	8.74	3.29	2.31	1.96
g. Total current expenditures	$188.93	$177.95	$239.32	$210.18
II. School district capital outlay expenditures per pupil in average daily attendance	44.85	24.76	37.39	70.80
III. Total school district expenditures per pupil in average daily attendance	$233.78	$202.71	$276.71	$280.98

[1] Includes "Other expenses of instruction," "Library" and "Laboratory supplies" in high schools and junior colleges.

[2] Includes "Operation," "Maintenance" and "Fixed charges."

[3] Beginning in 1931-32, transportation expenditures segregated from auxiliary expenditures.